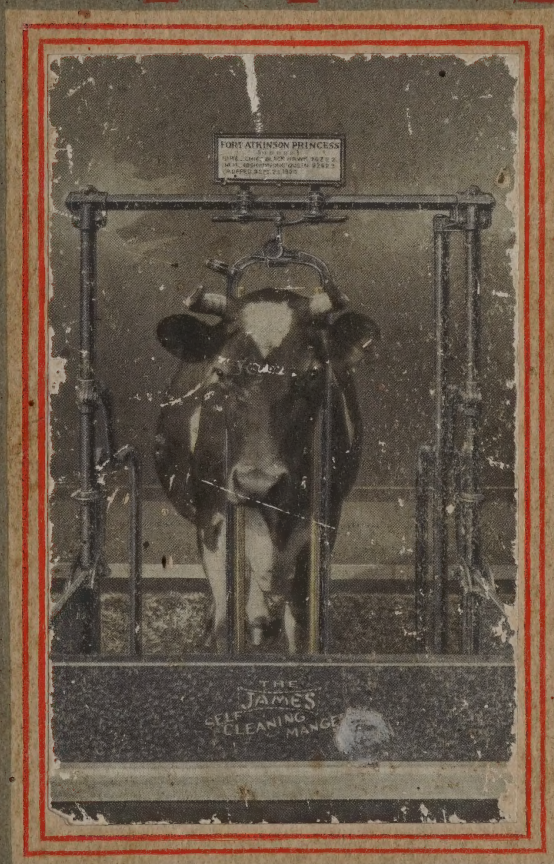
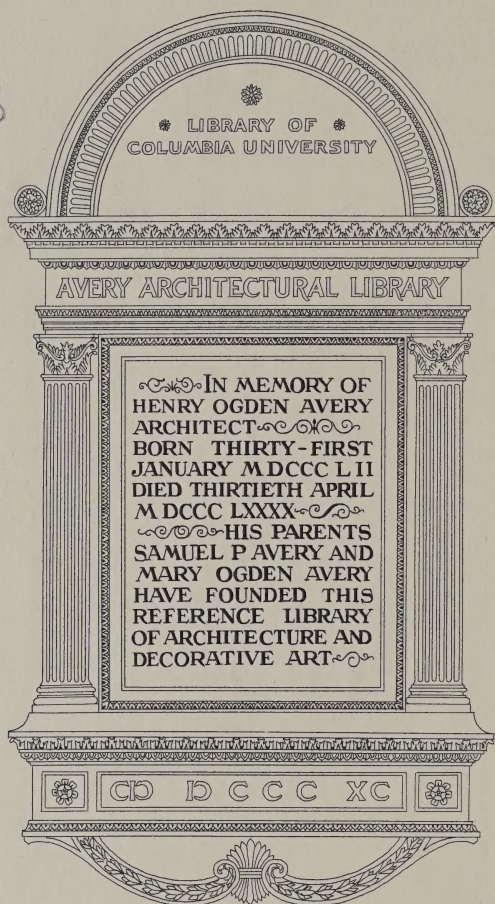


The James Way



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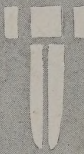


The
JAMES WAY

A book showing how to
build and equip a practical
up to date Dairy Barn



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JAMES

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The James Manufacturing Co.
Fort Atkinson, Wisconsin.

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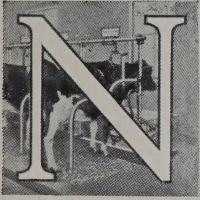
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(This edition issued March 1st, 1915. Subject
to change without notice.)

Barn Work Made Easy

A Personal Talk by Mr. James



NOW that we are issuing a new catalog, the advertising department seems to think I ought to start it off with a talk about how to make barn work easy.

Maybe I ought not to put in this personal word, but frankly I am intensely interested in this subject. It is one on which I have been working and studying ever since I was a boy, and I am really glad of the chance to talk with you about it.

But I am not going to stick very closely to that text, because there is a whole lot to this barn equipment proposition besides making the barn work easy.

I not only want to show you the easiest way of keeping your cows and their stalls clean; but I want to show you how to keep your cows comfortable while they are in the barn; how to save feed and how to increase the milk yield; how to save bedding; how to improve the health of your cows; how to lessen the need for hired help, and how to make it easier to get and keep hired help when you need it; how to make it easier to keep the boys on the farm; how to avoid some of the expensive accidents like abortion caused by straining, or the ruining of a cow by a neighbor stepping on her udder; and how to save work and save time in the daily chores about the barn.

And in showing you how to accomplish these things, I want to show you, too, that it will cost you nothing to do it excepting the investment of a certain sum of money for one year.

By the end of the year, the savings effected will have paid back your money, and thereafter the equipment will pay you big earnings regularly.

But because some of the statements I shall make are startling to anyone who has not already investigated, you may think it all theory and not based on practical experience unless you know something about the man who makes the statements.

So for just a little, I am going to talk about myself, and I know you will excuse me for doing so.

In the first place, I was brought up on a dairy farm; I have spent my whole life in the dairy business, in the planning of dairy barns and in the manufacture of dairy barn equipment.

As a practical dairyman, I have done every kind of work from the cleaning of the stable to the handling of the profits.

Cow stabling and the planning of dairy barns is now and always has been a hobby with me; even as a boy, I often tried to scheme out something new for the cow barn.

Perhaps I had a constitutional prejudice against doing any work myself that could be done easier by machinery; for when there was no machine to do



Barn of Peter Reiss
Sheboygan Falls, Wis.

the work, there was lots of fun to be had trying to devise some way of doing it more cheaply than by manual labor.

It was while on the farm that I first realized how much work could be saved in doing the daily chores, if the barn were only properly arranged to save steps in milking and feeding—and to save hard work in cleaning out the manure. That started me to studying barn arrangement and barn designing, as well as scheming how to make machinery do the work.

It was at that time that the James Sanitary Cow Stall was invented, with the Alignment Device, the Self-Cleaning Manger and the Triple Curve Stall Partition. A little later came the Sure Stop Swinging Post, then followed the Double Chain Hanger, the adjustable calf stanchions, calf mangers, the sanitary steel calf pen, the steel bull pen and steel cow pen; and a lot of other inventions which have had a good deal to do with making barn work easier.

And in the past few years I have placed on the market a complete line of manure, feed and milk can carriers, individual watering cups and a ventilator, of which I am extremely proud.

And every one of these items is a money-saver and a money-maker for the farmer who uses them.

I am in this barn equipment business with my whole heart; everything that we have worked out is based on actual experience and the hardest kind of work, covering the whole period of my boyhood and extending well into my maturer years. And I feel proud of what we have accomplished.

It has been my privilege to take the lead and originate sanitary dairy barn equipment ideas that make it easy to maintain the conditions in the stable required by law; equipment that not only helps keep the barn clean but that effects such great savings of labor, time and feed, and prevents in so many ways, losses by accidents and disease, that it will pay back its cost with one year's use.

How this equipment accomplishes such wonderful results is told in this talk and in the pages which follow. And whatever faults this catalog may have, I believe it has at least one merit—that every word in it is true. I know there has been no intentional exaggeration or misstatement in any way. The facts are plenty good enough. Really, the facts are so good that we might make our statements even stronger and yet be well within the truth.

Saving Time and Work

To begin with, James Equipment saves time, which to you is the same as money, whether it be your own time or the time of hired help.

And it saves work at every turn—when you are putting the cows in the barn and when you are turning them out; when feeding and watering; when milking; in caring for the calves; and it saves an enormous amount of time when cleaning out the barn and grooming the cows.



Barn of Peter Reiss.
Sheboygan Falls, Wis.

Because of the James Alignment Device, the standing platform of the stall is kept clean and cows kept in James Stalls do not get covered with filth.

Farther on in this book, you will learn how the Self-Cleaning Manger, the Sure Stop Swinging Post, the Watering Buckets, the pens and other parts of James Equipment save time and work. Not so much is said about the carriers however, so I want to take some space right here to tell you about them.

I believe, that if you will study the pages about the carriers you will agree that there are no others on the market today good enough to be considered in the same class.

I do know that if you could handle one for five minutes, you would be so enthusiastic that you wouldn't have any other kind at any price. That is the way it has been with every farmer who has had that opportunity.

To make it possible for you to try it out for yourself in your own barn, we will gladly ship you an outfit on trial; and if, after trying it for thirty days, you find it does not make good our claims in every way, it belongs to us and you get your money back, if you have paid for it to take advantage of the cash discount. Can you ask any fairer proposition than that?

Now as to the benefits of the James way of handling the manure.

Where the manure is loaded on to the spreader and put on the fields at once, the James Carrier makes it possible to get the manure on to the soil with *but the one handling*—that of loading the tub in the barn.

That's some different, isn't it, from loading the manure into a wheelbarrow—pushing it out through the barn, leaving a trail of dripping filth—across a mushy yard and up on to a manure pile, trying the strength and patience of the strongest man; afterwards loading the wagon from the pile, losing the liquids; then hauling it to the fields, dumping in piles and later scattering with a fork.

The big tub of the James Carrier holds as much as a great many wheelbarrow loads; the carrier can be run out and dumped in less time than a single wheelbarrow and it takes no longer to load manure into the carrier than it does into the wheelbarrow. So the saving of time and work is very large.

The James Manure Carrier not only saves much of the hard work, but it saves you many dollars' worth of liquid manure which could not be saved in any other way; the saving of liquid manure alone will go a long ways towards paying for the carrier.

When the wheelbarrow method is used, the manure is quite apt to be piled near the barn. But with the James Carrier, it is easy to put the pile far away from the barn, so that there will be no fumes of ammonia arising near the building to damage the paint, rot the sides and sills, ruin the finish of vehicles near by, injure the health of the animals, or taint the milk. You can keep a clear space between the barn and the pile or manure shed and save money.



Section of Pen Dept. Peter Reiss Barn
Sheboygan Falls, Wis.

The James Feed Carrier or the James Feed Truck will save you so much walking back and forth to the feed room, and will save you so much work and time, that you will wonder how you ever got along without it.

You can feed twenty-four cows or more the James way, with no more walking and in the time required to feed a few by the basket method.

Your feed basket holds enough silage for only one or two cows; the James Carrier or James Feed Truck holds sufficient for twenty-four to twenty-eight. And the James way is easier, because you have no weight to carry—the silage being loaded into the tub at the silo or in the feed room, and rolled easily along in front of the mangers.

The James Milk Can Carrier is also a time and labor saver. All the James Carriers are more nearly indispensable than any hay carrier, for these carriers save work each day throughout the whole year. We claim for all of them that with them you can do the work for which they are intended more quickly, more easily and at less daily cost, than you can in any other way. And if they don't make good, you can get your money back.

Saving Feed

During the past few years, the cost of feed has advanced something like fifty per cent, and in spite of all that may be done by learning how to use cheaper feeds, it is of great importance that the cow get the benefit of every ounce that is given her.

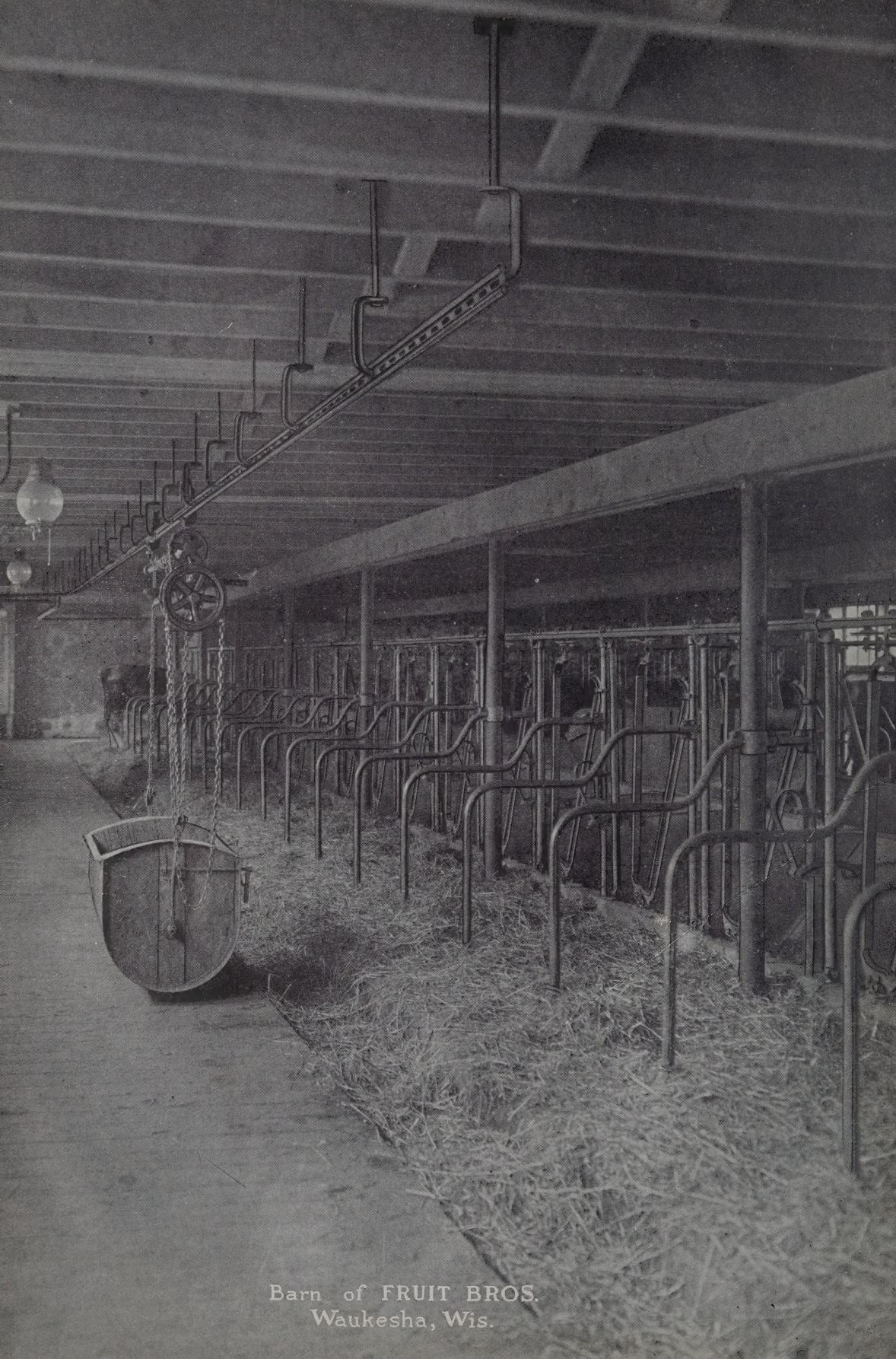
That's where James Equipment comes in again as a money-saver. The high level curb made possible by the James Double Chain Hanger on the stanchion, together with the James Individual Self-Cleaning Manger, prevents the cows from wasting feed.

Not only that—it makes it possible for you to feed each cow just the amount of feed and just the combination of feeds, that you think she ought to have to produce the best results. Each cow has her own feeding compartment, and a fast-eating cow can't rob a slow-eating neighbor. This prevents one cow getting too much and another too little, with a consequent waste of feed and injury to the cows.

In a letter, Charles Helms of Rose Lawn, Wis., mentions another way in which James Equipment saves feed, and others have spoken to us of this same point. He says: "James Equipment gives the cows comfort, so they require less feed."

Increases Milk Yield

This matter of cow comfort is extremely important, for the way in which a cow is fastened in the stall has much to do with her milk producing ability. The cow is so comfortable in the James Stall, that her movements are not



Barn of FRUIT BROS.
Waukesha, Wis.

cramped in the least; she can lie down naturally and turn her head to card herself, reaching all the way back to her flank on either side. She is almost as free as though in the open yard, yet she is tied securely.

Joseph Harrold, Columbiana, Ohio, writes: "The only regret I have is that I did not get James Equipment twenty years sooner; it would have put many dollars in my pocket, to say nothing of the satisfaction I get out of it. It certainly saves money by keeping the cows more comfortable and cleaner, and of course I get more milk. The milk we get is sanitary, and we can ship it to the city without any objections coming back."

"James Equipment saves me money because it is more sanitary, a great deal less work, the cows are more comfortable and consequently give more milk for the same amount of feed," is the way Mr. H. N. Morris, Rosemount, Minn., phrases his opinion of the subject.

James A. Carroll, Reedsburg, Wis., finds that "James Equipment" is in a class by itself. It saves me money, as the comfort enjoyed by my cows enabled them to produce enough more butter to pay for the stanchions the first winter."

And Chas. S. Rausch of Marysville, Ohio, says: "James Equipment saves me a good deal of money, because it takes less feed and there is none wasted. Each cow gets her share, one cannot steal from the other; they give a bigger flow of milk, and do lots better."

Improves Health of Cow

The cleanliness afforded the cows by the use of James Equipment, and the sanitary conditions in the barn made possible, helps maintain better health in the herd—and better health of course, means more milk, with less money spent doctoring sick cattle.

You will note from the pictures how little the stalls interfere with light, that there is very little surface on which dust and disease germs can accumulate, and the air has free circulation throughout the barn.

Saves Bedding

In a stall without a manger, a cow oftentimes tries to get feed which is out of her reach. In straining for it, her hind feet may slip and push the bedding back into the gutter.

Then, too, James Equipment, by keeping the manure in the gutter where it belongs, and not on the standing platform or the cow's flanks, lessens the amount of bedding required.

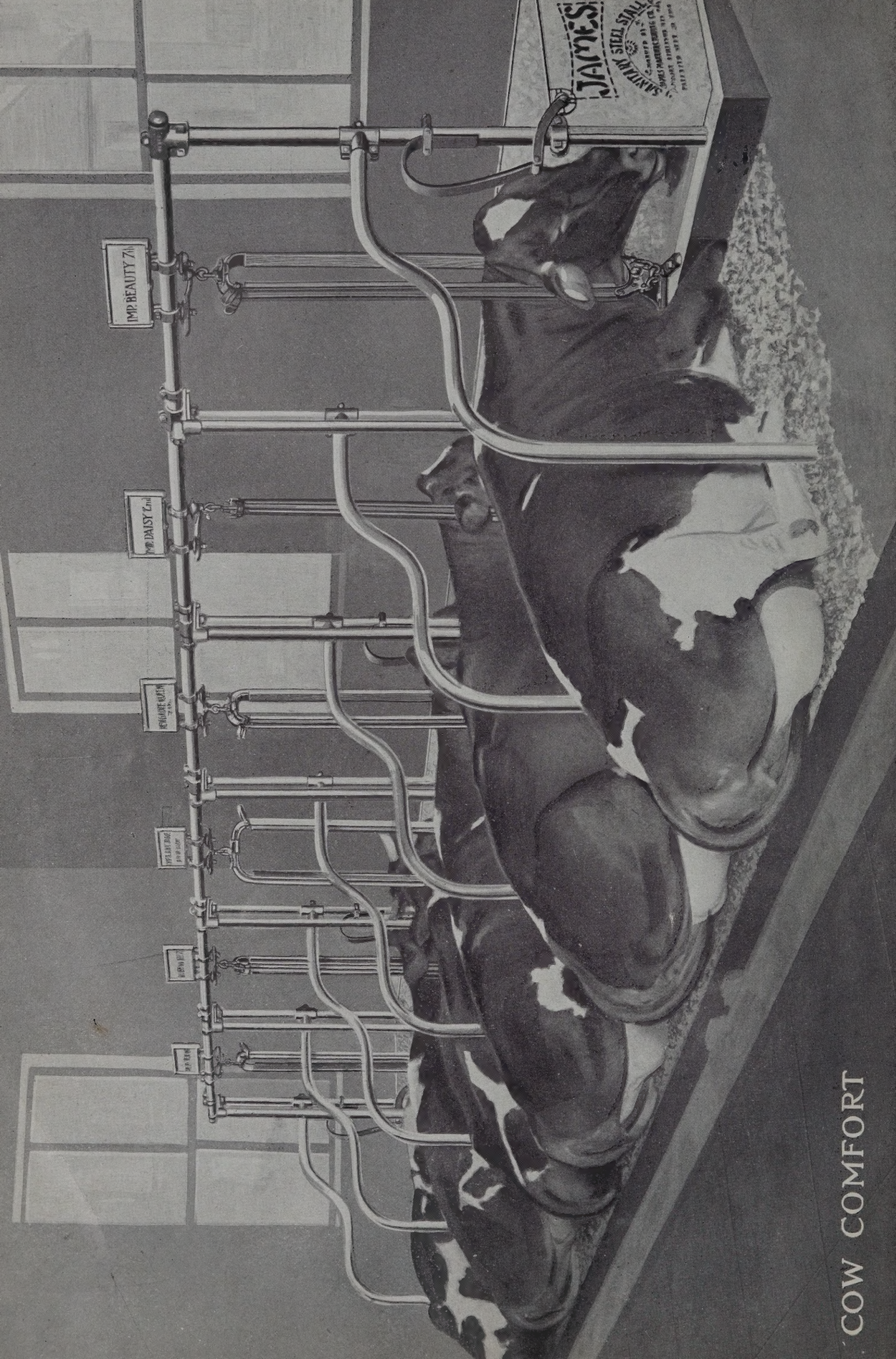
A. G. Abbott, of Wadsworth, Ohio, says that James Equipment saves him money "because less straw is required for bedding."

With the cows in James Stalls, the bedding does not have to be changed as often, and this becomes an item worth consideration in the course of a year.

Doubles Business at 15c a Quart

A good many dairymen who are selling milk direct to the housewives have discovered another very important feature of James Equipment—its use as a means of getting more customers, and a bigger price per quart.

There is no better way of showing what can be done along this line than by quoting the experience of a couple of dairymen.



COW COMFORT

Mr. Franklin C. Bron, of Tiverton Four Corners, R. I., wrote us as follows: "In my opinion James Equipment will last a lifetime, and it saves me money on a big basis. It has increased my business 100 per cent, as I have been recommended by the Board of Health and doctors of Fall River to receive fifteen cents per quart for my milk. The James Equipment secured me the highest score by the Fall River Board of Health, which was 97 points for sanitary conditions, the next party to me scoring 73. That amounts to something, as Fall River is a very strict city on milk. I am doing a very good business, and I claim it all through the James Equipment."

Gets Two Cents More per Quart

Mr. E. D. Howe, Marlboro, Mass., found it possible to get more customers, and a bigger price per quart for his milk, by showing the people how his cows were kept clean and all conditions sanitary by means of a barn remodeled the James way and by the use of James Equipment. He wrote us, saying:

"We had 'Inspection Day' some time ago, and about two hundred of our customers and others accepted the invitation to visit our barn. These remarks of our customers were typical. One of them said: 'I told my husband we would not pay 8 cents for milk to anybody as long as all the rest are selling for 7 cents, but after seeing this magnificent stable and the care you take with your cows and milk, I would not have any but 8 cent milk.' Since our opening day we have had 200 others here, and they all conceded it to be the finest cow stable in this part of the country. I do not regret the expense, for the work of caring for the cows is so much easier that it requires but little more time to now care for forty head than formerly to care for twenty. We are more than pleased with the James Stalls and Stanchions, and are the only ones getting 8 cents per quart for our milk."

Mr. Howe wrote us again seven months later, saying:

"Our trade continued to increase so rapidly that we were compelled to buy milk to supply part of our customers. This caused many complaints, however, as they at once noticed the difference between the best milk we could buy and that produced in our own barn. We finally decided that inasmuch as we had more trade than we could handle at 8 cents per quart the best thing for us to do was to raise the price again, and handle only such business as we could supply ourselves. We raised our price to 9 cents, and still retain all the trade we can comfortably supply."

Lessens Need of Hired Help

James Equipment makes you less dependent on outside help. Mr. S. P. Stevens of Bartlett, Ill., said something on this point that will interest you.

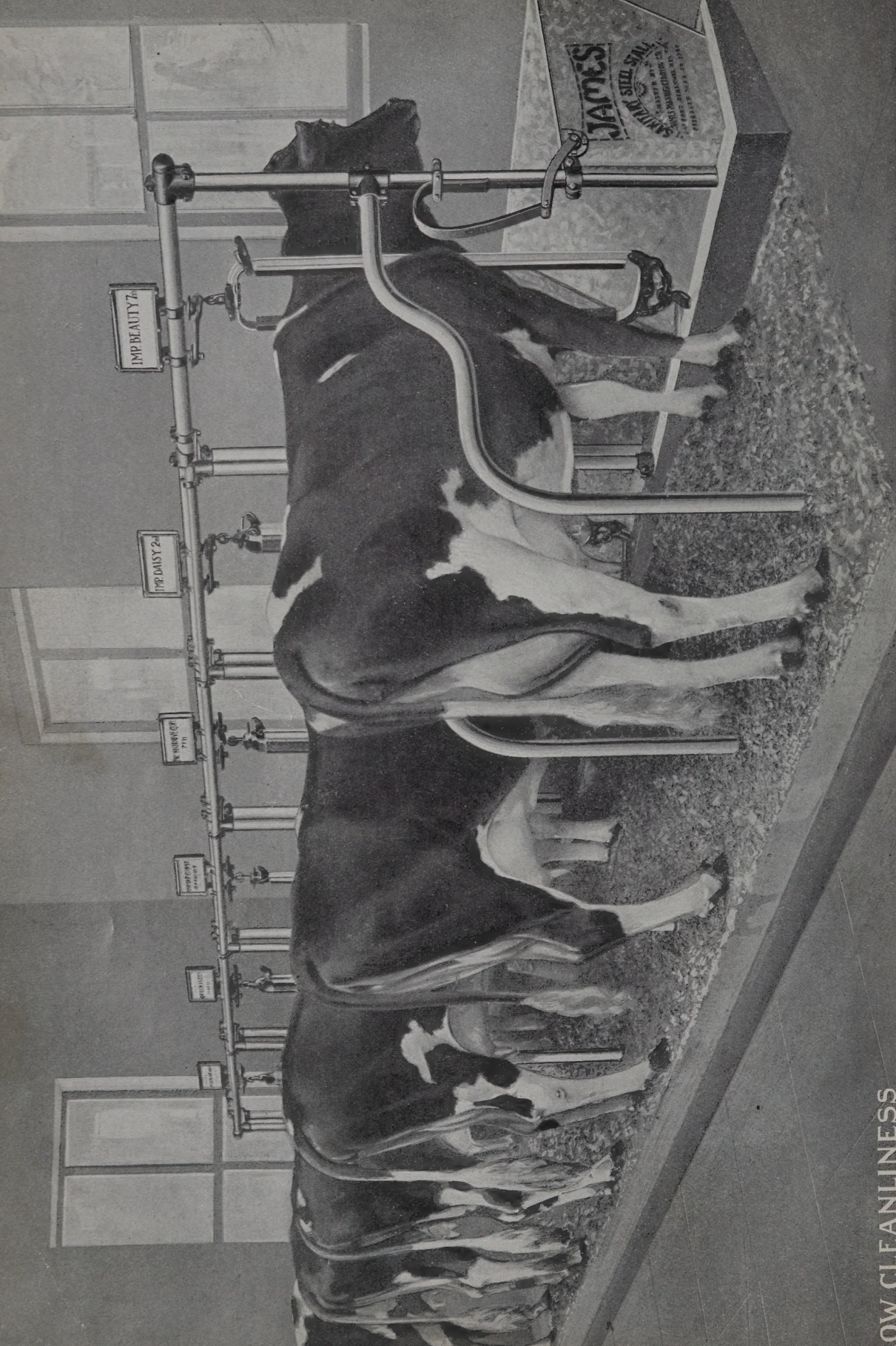
"By actual test, two men can better and more quickly care for ninety cows in our new barn, outfitted complete by you, than the same two men could care for forty-four head in the cement-floor barn with ordinary equipment we previously used."

Notice that Mr. Stevens says that with James Equipment his men can do twice as much work. You can figure for yourself just what that saving amounts to each year in actual money.

James Equipment lessens your need of hired hands in two ways; they cut down the amount of work to be done, and they make farm life easier and hence more attractive so that your own boys will feel more disposed to remain on the farm.

Keep the Boys on the Farm

The boys have been leaving the farm. During the past ten years the population has been rapidly moving from the country districts to the cities and towns; in many sections it has become very difficult to get hired men.



LOW CLEANLINESS

Though wages on the farm have steadily increased and the work made more attractive, the apparently greater opportunity and the allurements of the city continue to draw from the rural population, making it harder every year to obtain the help needed to work the farms.

James Equipment lessens the daily work in the barn, cuts down the time required to do the chores, does away with the most disagreeable features of the task and helps make farm life easier and more pleasant.

There is plenty of hard labor and enough disagreeable features in farm life at the best; if you do not take advantage of the modern conveniences and labor-saving devices, it is to be expected that the boys will become dissatisfied and seek their life work in the towns and cities.

Figure the Savings for Yourself

I have tried to show you in a general way how James Equipment will save and make money for any dairyman, whether he has three cows or three hundred, although I have said very little on some points because they are very fully covered in other sections of this book. But I believe I have said enough to prove my case.

Now I want you to take your pencil and figure out the saving in your own barn for yourself, item by item.

Take the matter of labor for instance. Thousands of dairymen tell us that James Equipment cuts squarely in two the work of caring for the cows in the barn, and I guess there can be no question whatever about that. But be conservative; figure your labor at \$1.00 a day, and assume that James Equipment reduces the work of cleaning, feeding and watering only 25 per cent instead of half. Figure out the number of hours per day required to do the barn work and you'll find that even on the above basis James Equipment will pay you a big profit every year.

Then estimate how much feed your cows waste a day, by nosing it back into their stalls, and how much feed is wasted by the fast eating cow taking feed she does not need from a cow that eats more slowly. Assume that James Equipment saves but a fourth instead of all this wasted feed.

Add that to the money saved on labor.

Now turn back and reread the letters from Mr. Carroll, who says his cows produced enough more butter the first winter to pay for the stanchions, and others who spoke of the greatly increased milk flow.

Even if each cow produced but a pint more a day—one-half pint each milking—it would mean \$3.00 more income per cow each year during the six months or so they are in the barn; that's a clear profit of 30 per cent or more on the cost of the entire stall.

That amount of increase in milk yield, of course, would hardly be noticeable, but we want you to figure this on an extremely conservative basis. We know that no matter how conservatively it is figured, the result will show a big profit from the investment in James Equipment.

Now add the value of the increase in milk yield to the saving of labor and the saving of feed.

Then estimate, if you can, what it is worth to you in dollars and cents to insure better health for your cows by reason of sanitary conditions in the barn, avoiding disease by being able to keep your cows clean, dry and comfortable; and how much it is worth to prevent accidents that might cause abortion, and the ruin of valuable cows by having their udders tramped on by neighbors or by cows loose in the barn.

If that is worth anything to you, add your estimated savings from this source to the saving of labor, the saving of feed and the increased milk yield.

Now total it up—leave out of consideration all profit received through securing more customers and better prices if you operate a milk route; don't take into account the satisfaction of maintaining a sanitary, model dairy barn; forget about the better prices you get when you come to sell cows because of their showing off to better advantage in James Stalls; omit from your figuring the benefit received by making it easier to get and keep good hired help (for hired help prefer every time to work in a barn equipped the James way); forget all about the many ways in which James Equipment serves you, and consider only the actual money saved and made by reason of labor saving, feed saving, increased milk yield and better health of your stock.

If you've figured it carefully, you will know our customers are well within the truth when they say that James Equipment pays for itself.

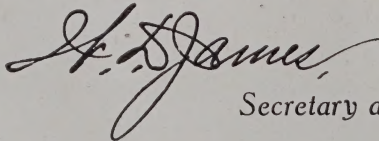
Now don't you see that whether you buy James Equipment or not, you are paying for it anyhow—paying for it in unnecessary cost of caring for the cows in the barn, in wasted feed, extra help, loss of time, ruined udders and by other losses and wastes that would be prevented by James Equipment?

So long as you are paying out this money anyhow, why not have James Equipment to show for it?

Why not take this money that is being expended without getting anything permanent in return for it, and change it into an investment that will pay back a big profit every year?

Can you afford not to modernize your barn the James way?

Sincerely yours,

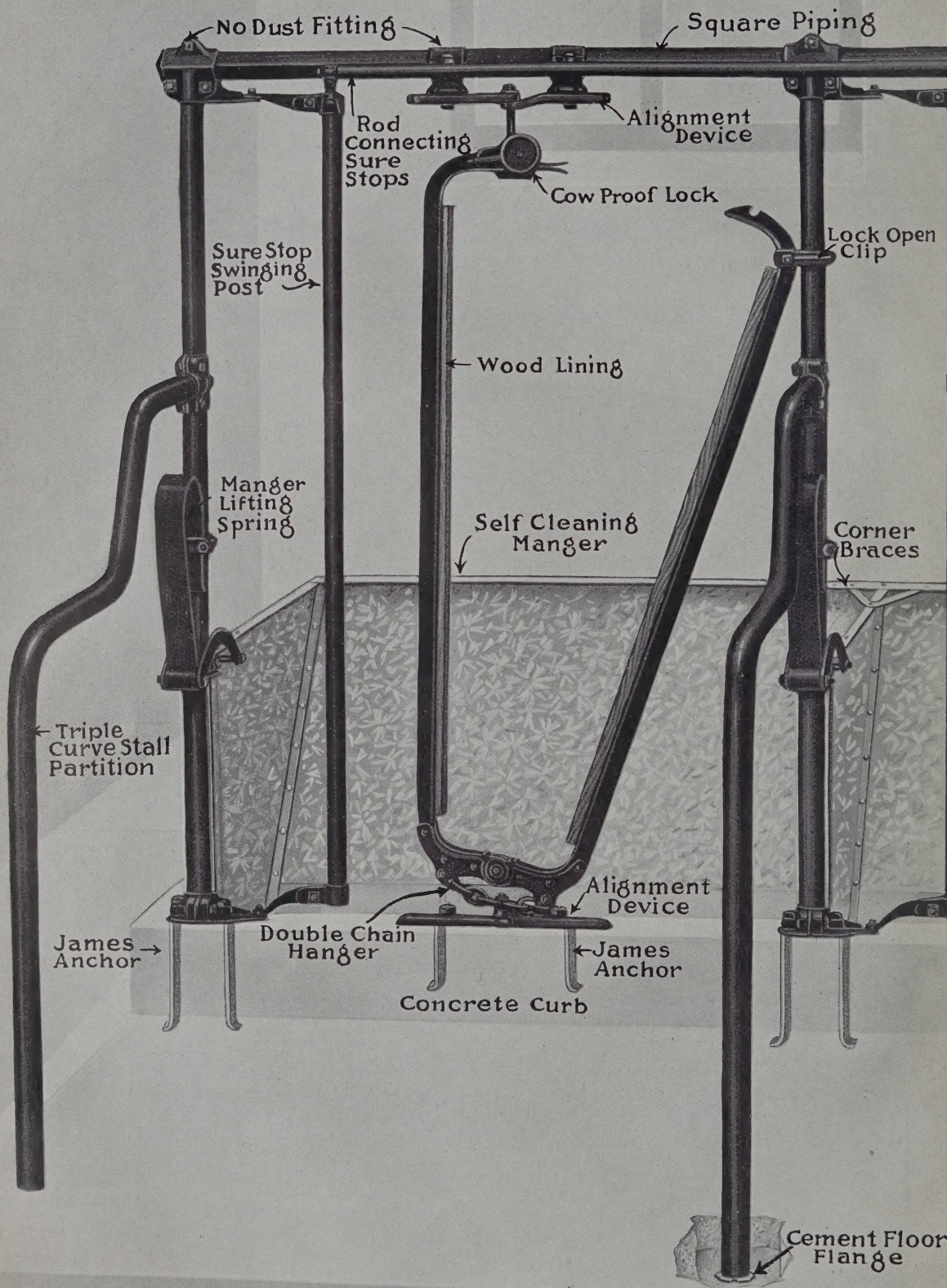


Secretary and General Manager.

JAMES

Special Features

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Special Features of the James Stall



MOST folks have been used to thinking of a cow stanchion or a cow stall as merely a convenient means of tying the cow. Of course that is the first purpose—and a stanchion or a stall that permits the cow to get loose in the barn loses most of its value.

James Stalls and Stanchions do tie the cows, all right—tie them so they can't get loose until they are turned loose—but they are far more than mere cow ties.

James Stalls and Stanchions insure comfort for the cow; keep the stalls and the cows clean; save labor, time and feed; aid in preventing and curing tuberculosis and other diseases; prevent accidents that might cause abortion or ruined udders; increase the yield of milk; improve the health of the cows; save bedding; show off the cows better to prospective buyers; and make it easier to get and keep good hired help.

The various savings effected by James Stalls and Stanchions total large enough in a year's time to more than pay the initial cost; and these savings are made possible by the special patented features, without which the stall would remain merely a cow tie.

We urge you, therefore, to study carefully the following pages that you may have a clear understanding of the purpose of each of these special features and how it operates. It will be well worth your while for it will help you to choose wisely the stall that will pay you the biggest profit on your investment.

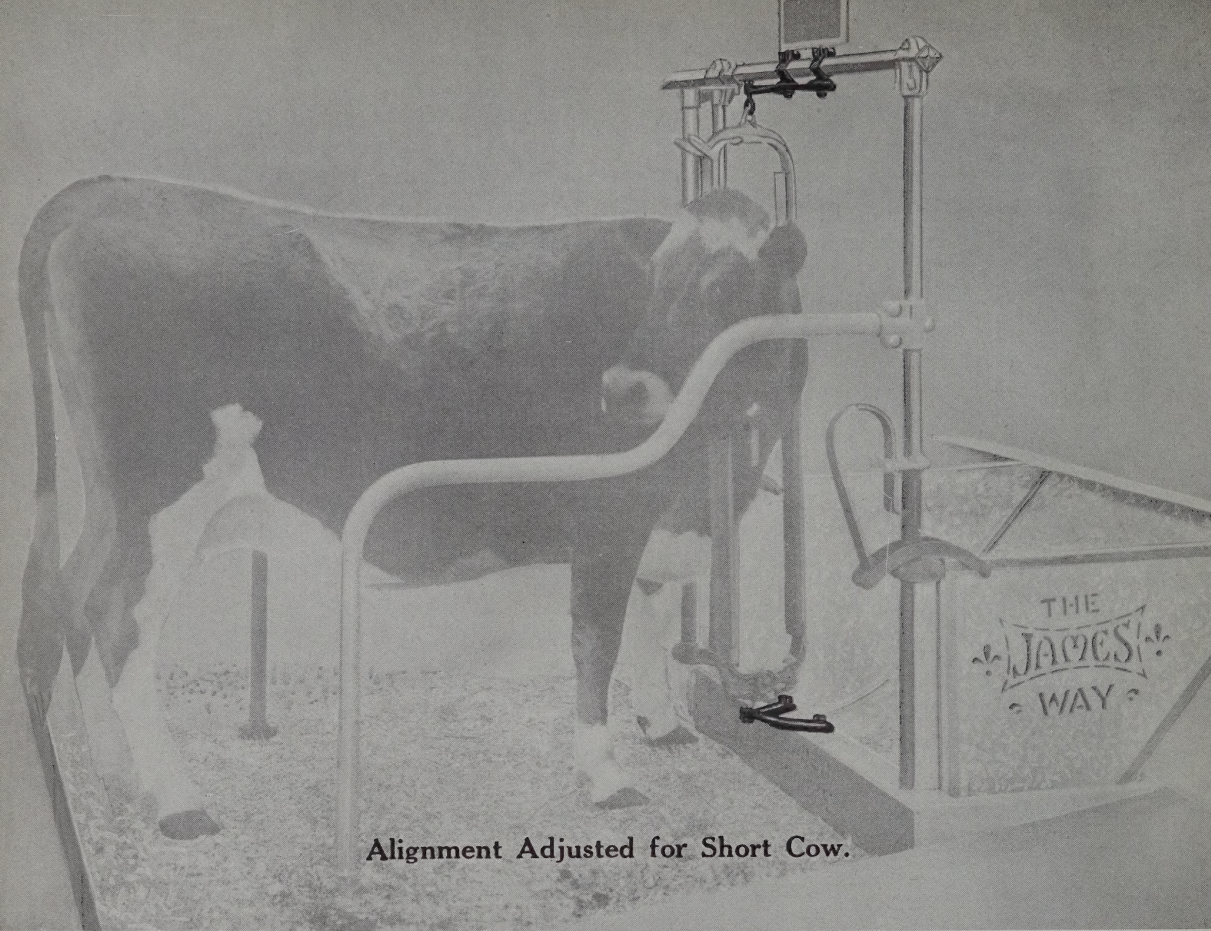
James Alignment Device

(PATENTED)

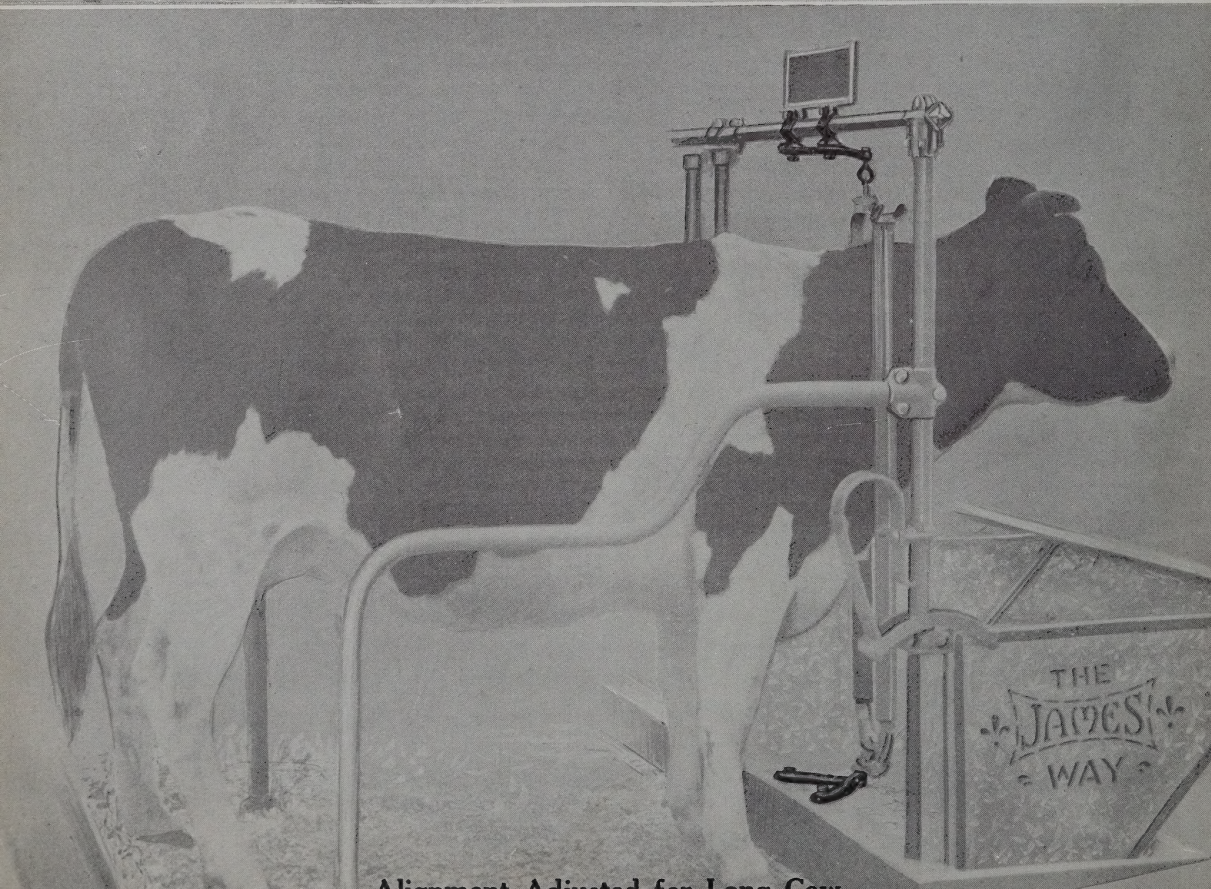
The James Alignment Device permits the adjustment of the stanchion forward or backward in the stall, lengthening or shortening the stall to fit the cow. It aligns all the cows—long, short and medium—at the rear, so that the manure falls in the gutter instead of on the standing platform.

It keeps the stall clean, hence keeps the cow clean, and saves work in the cleaning of the cow and the stall; lessens the amount of bedding required; and insures a bigger yield of milk because the clean, dry stall affords the cow greater comfort and promotes better health.

Because the cows have a clean place on which to lie, they keep clean—doing away with most of the disagreeable and expensive task of cleaning them. The barn is more easily kept in a sanitary condition; and the cows are healthier and more productive; the labor item is reduced to the minimum and the appearance of the barn is vastly improved.



Alignment Adjusted for Short Cow.



Alignment Adjusted for Long Cow.

If you want to get a line on the labor saving effected by the alignment device, just figure out the time required to groom your cows each day and what that time costs you. You will then better appreciate the fact that the alignment device is the greatest improvement ever made to promote cleanliness of the cow and sanitary condition of the barn and milk.

The James Alignment has seven adjustments, providing for seven sizes of cows. It has an adjustment of $10\frac{1}{2}$ inches in all.

The James Alignment Device is patented and because other manufacturers have no right to manufacture or sell such a device they sometimes attempt to persuade purchasers that this valuable feature of the James Stall is worthless—that it will not accomplish its purpose.

There is one convincing answer to all their arguments however plausible they may seem.

That answer is, the James Alignment Device *is* doing all we claim in thousands of dairy barns right now. It *is* saving time and labor for the fortunate owner; it *is* keeping the cows clean.

You need not take our word for it—read the following letters received from dairymen who are using the James Equipment.

And remember—we also have hundreds of similar letters from owners just as enthusiastic that we will gladly send you. If you want to see them, send us a postal card, asking for these letters; then, should you wish, write to any of them, enclosing a two-cent stamp; you will get an answer.

B. C. Settles, Palmyra, Mo., says: "After a thorough trial of the James Stalls with my cows last winter, I want to say there never was a time that I had to clean any manure off their udders."

Edward Van Alstyne, Kinderhook, N. Y., writes us: "I have two-year-old heifers standing side by side with full-aged cows, and both stand just over the drop."

Read this from C. J. Orn, of Barron, Wis: "James Equipment keeps my cattle clean at all times, and therefore saves time for the men taking care of the herd. Cows also milk more when comfortable."

And this from W. E. Colwell, Kittanning, Pa.: "I find the James Stalls save me money, and my cows have never done better than they have this winter; my cows are all as clean as in summer."

Another letter from Mr. J. W. Breyfogle, Three Rivers, Mich., comments thus: "The Alignment Device saves me time and money. While you take time to wash five or six cows, I can milk half that number; since I have had the James stanchions I have not washed the cows, yet they are perfectly clean and ready to milk."

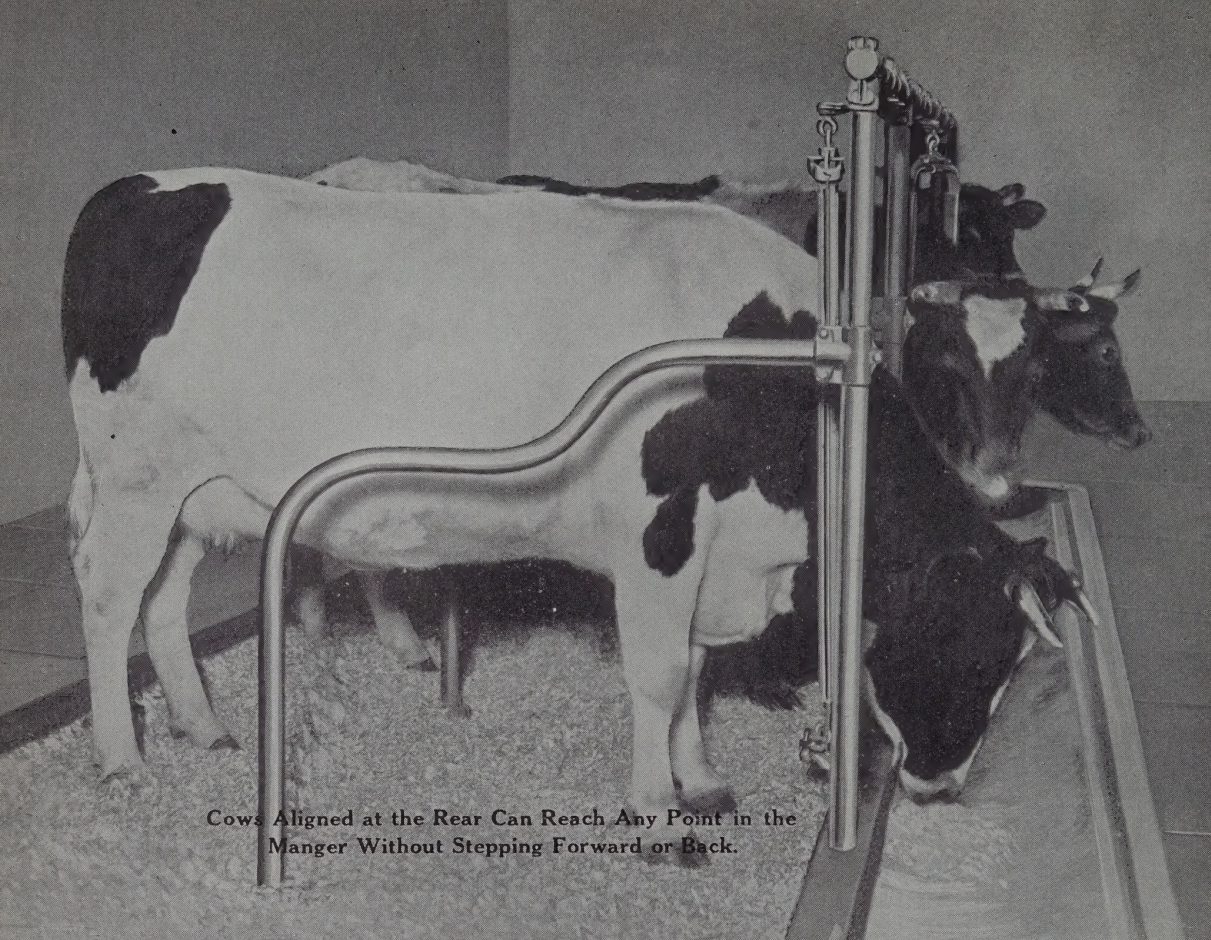
Hershey Chocolate Co., Mfrs. of Chocolate and Cocoa, Hershey, Pa., say: "Your stalls and stanchions are giving most excellent satisfaction. We consider them far ahead of any other barn equipment on the market. They are neat, durable and convenient, and afford the cow plenty of comfort. The Aligning Device is a great aid in keeping the cows clean, and in my opinion no dairy barn is perfectly equipped unless the James Sanitary Cow Stall is used. Will send measurements in a few days for about two hundred more stalls." (This company already has 400 James stalls in use.)

We can furnish still better proof. If you will write us, we will give you the names of the nearest dairymen who have the James Equipment in use in their barns, so that you may visit them, talk with the owners personally, and learn for yourself that our claims are true. The Alignment Device and other features of the James Equipment are not experiments; their value as money makers and money savers has been tested out and proven by thousands of most progressive business dairy men during the past eight years.

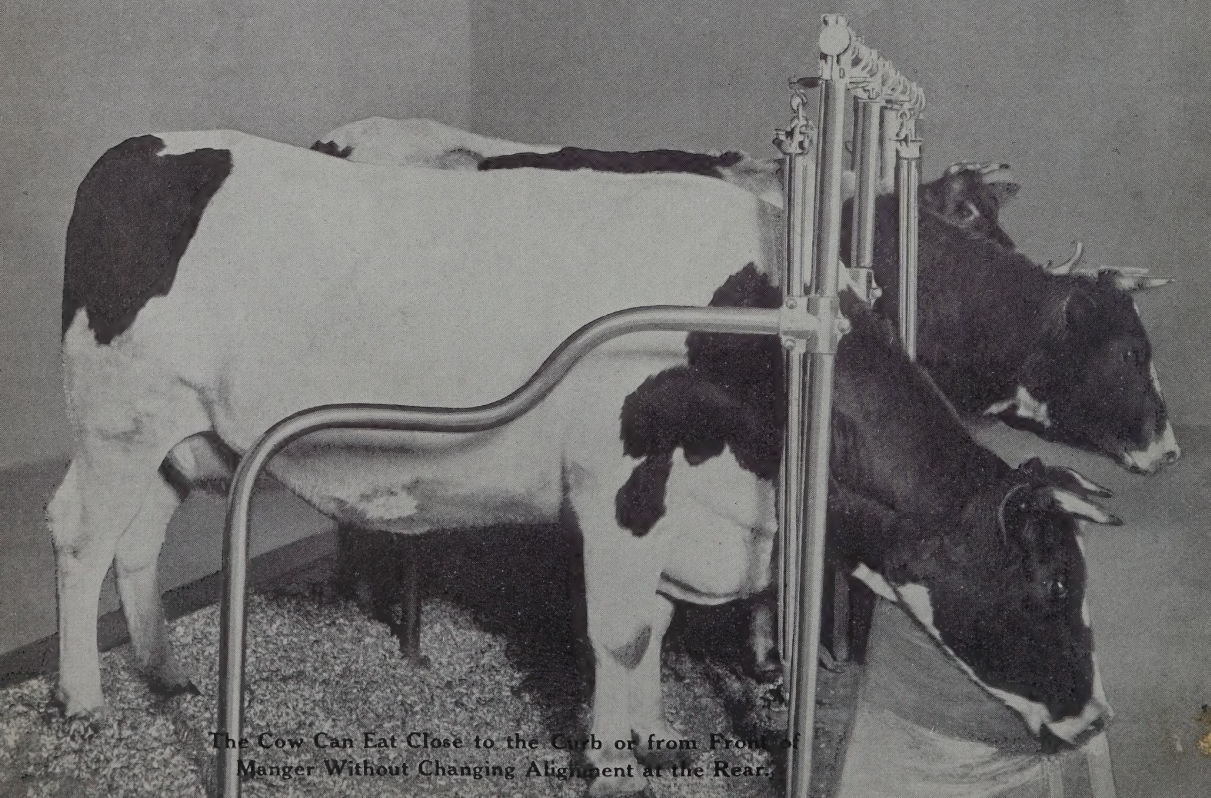




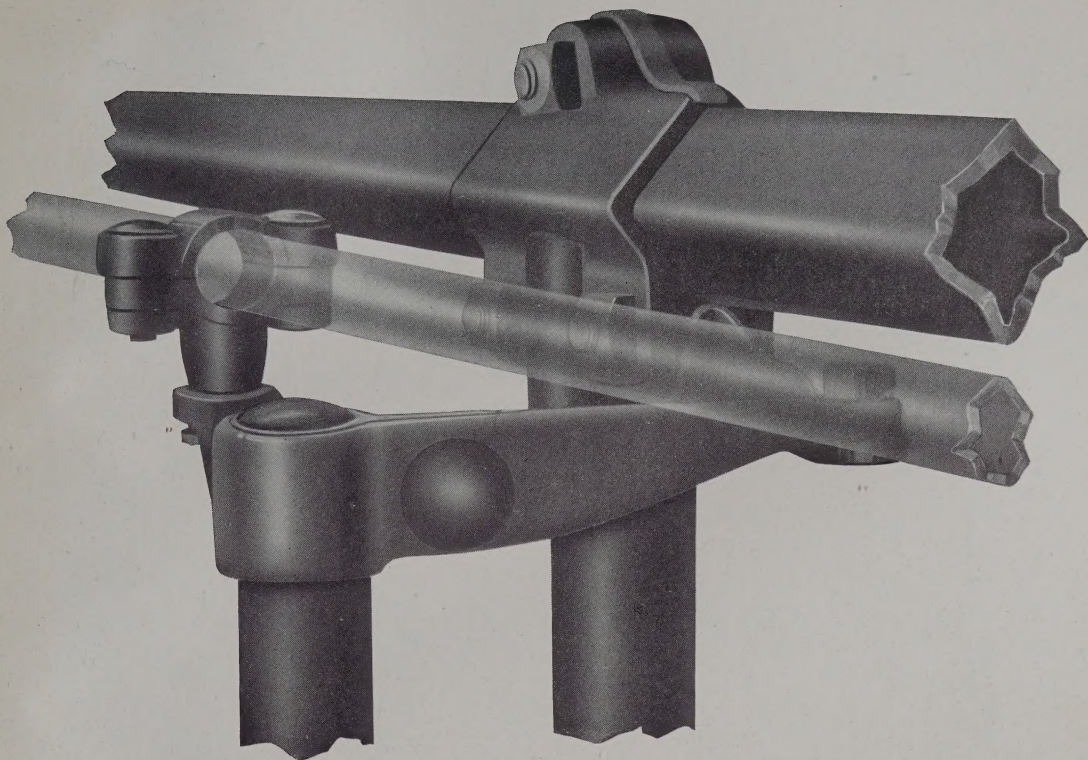
Wood County Asylum Barn
Marshfield, Wis.



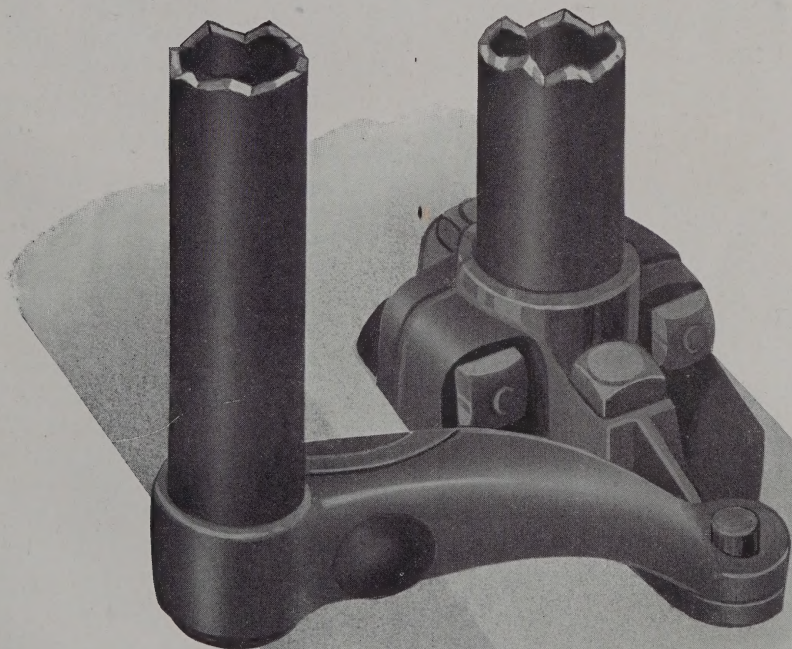
Cows Aligned at the Rear Can Reach Any Point in the Manger Without Stepping Forward or Back.

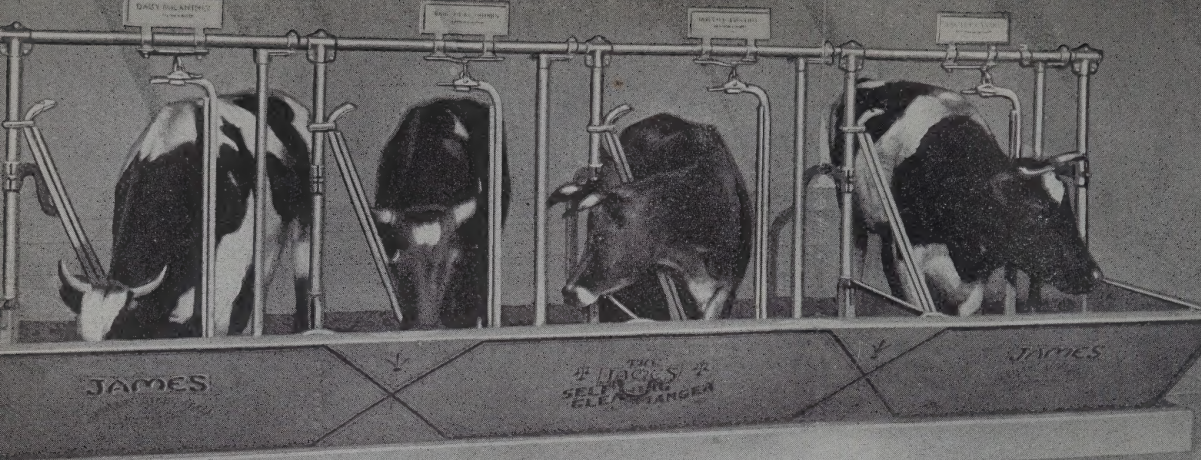


The Cow Can Eat Close to the Curb or from Front of Manger Without Changing Alignment at the Rear.

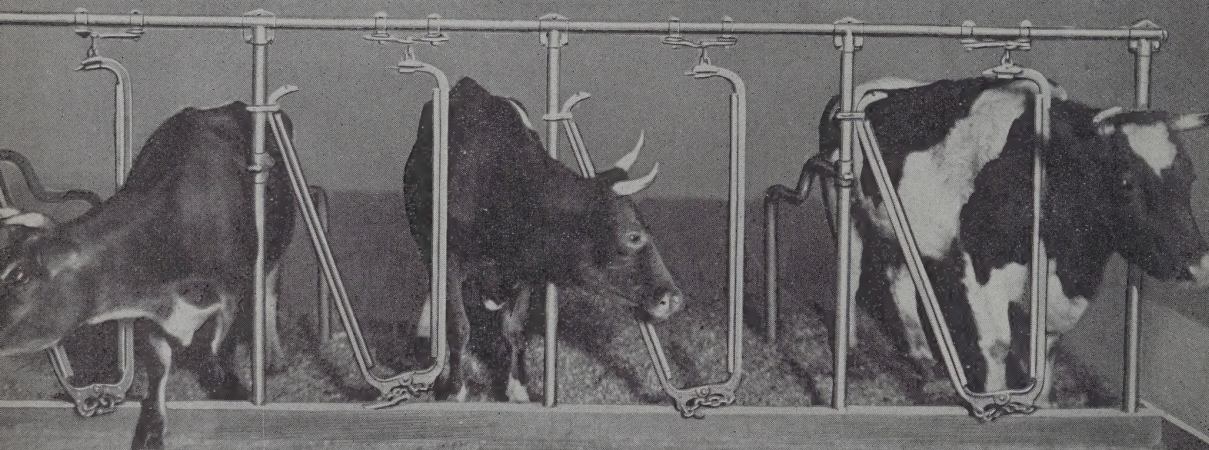


Showing details of upper and lower fittings on Stall Posts,
and Sure Stop Swinging Post Fittings.

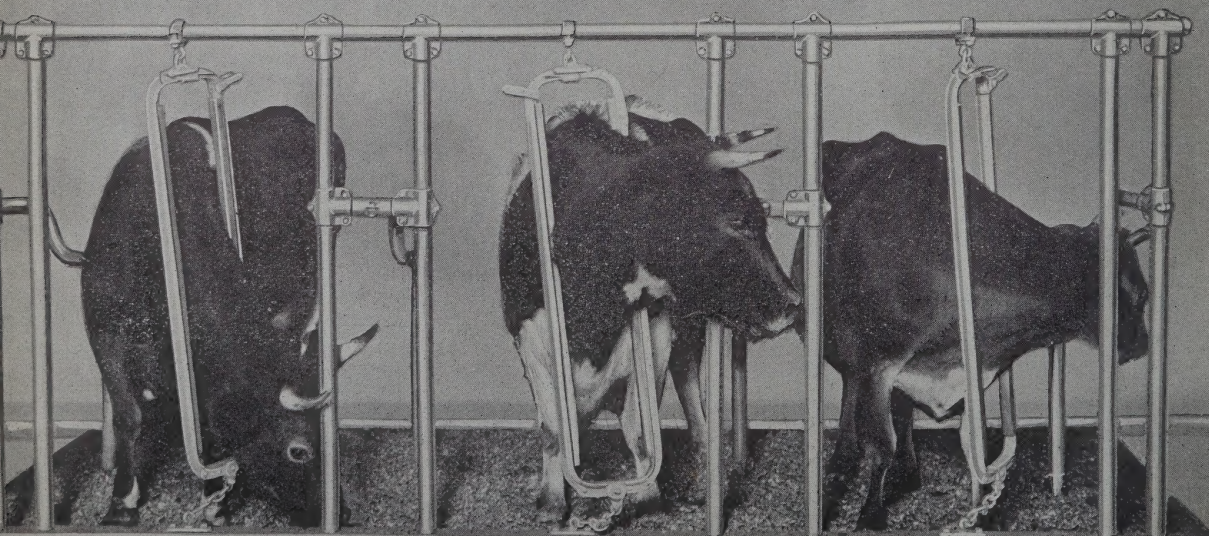




Sure Stop and Lock Open Device Steer the Cow Right.



Lack of Sure Stops Causes Loss of Time and Trouble.



Rigid Sure Stops Give the Cow Too Little Room.

James Sure Stop Swinging Post

(PATENTED)

It is cow nature, when entering the stall, to put her head in the wrong place if she can.

It is human nature for the hired man to sometimes lose patience and abuse the cow.

And the owner pays for it with less milk in the pail.

The "James Sure Stop Swinging Post and Lock Open Device" steer the cow's head right into the open stanchion,—saving time and trouble.

But when the cow is locked in the stanchion, the sure stop post is swung back out of the cow's way—giving her plenty of head room so that she can card herself on either side and lie down naturally.

When the first swinging stanchions were used, it was a problem how to prevent the cow from causing trouble by putting her head in the wrong place in the stall.

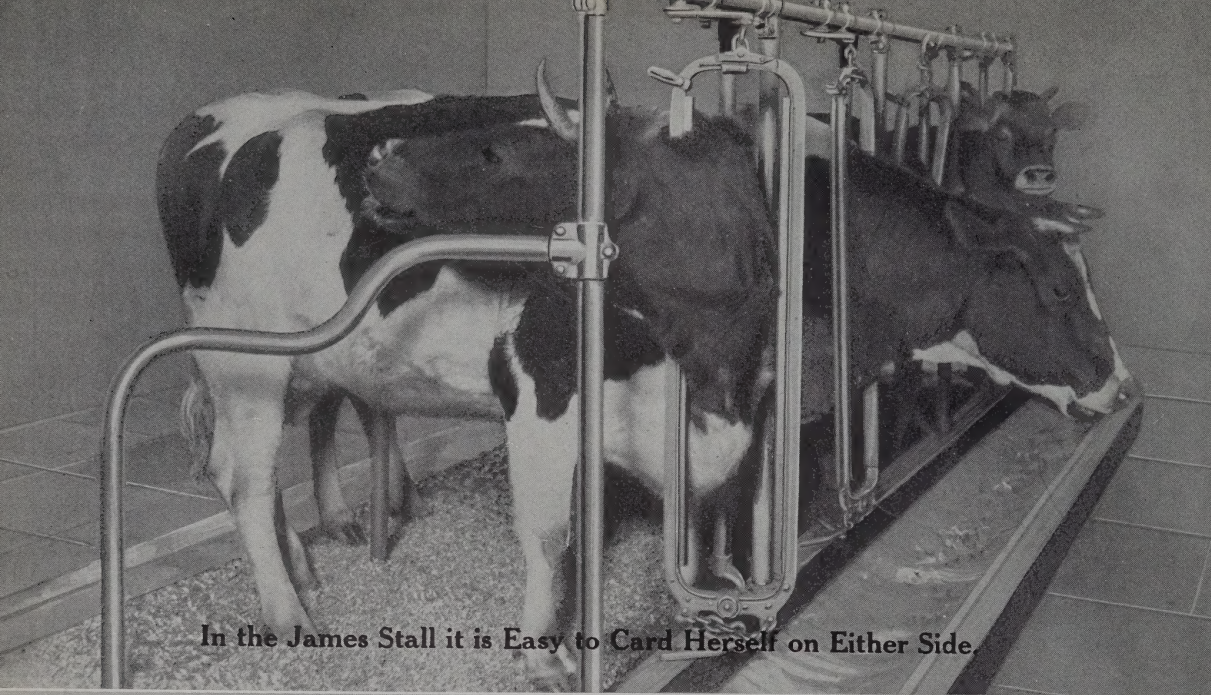
Of course, the object of the swinging stanchion is to permit the cow to move freely, to rest her head in a natural position when lying down and to card herself without interference; and to do this, there must be as much room at the head of the stall as at the rear.

The problem was simply this: there must be a rigid stop between the stationary bar of the stanchion and the stall post, when the stanchion was open, and this stop must not be there when the stanchion was closed.

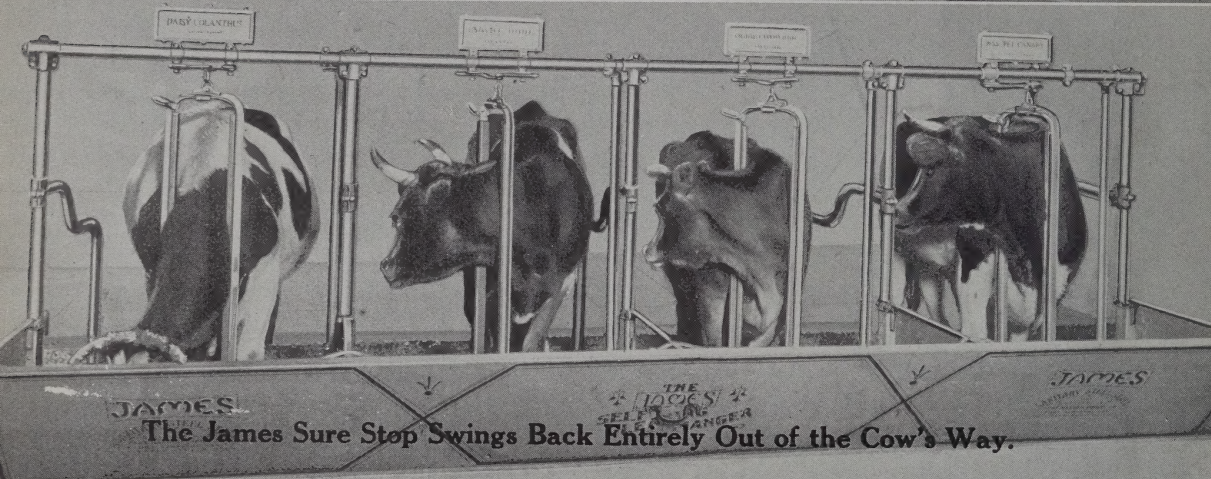
So the James Sure Stop Swinging Post was devised, and most efficiently has it accomplished the purpose.

When the stanchions are open, ready for the cows to enter, the attendant, by the simple throwing of a bar, places the sure stop posts in position for an entire row of stalls, no matter how many. It works so easily a child can handle it.

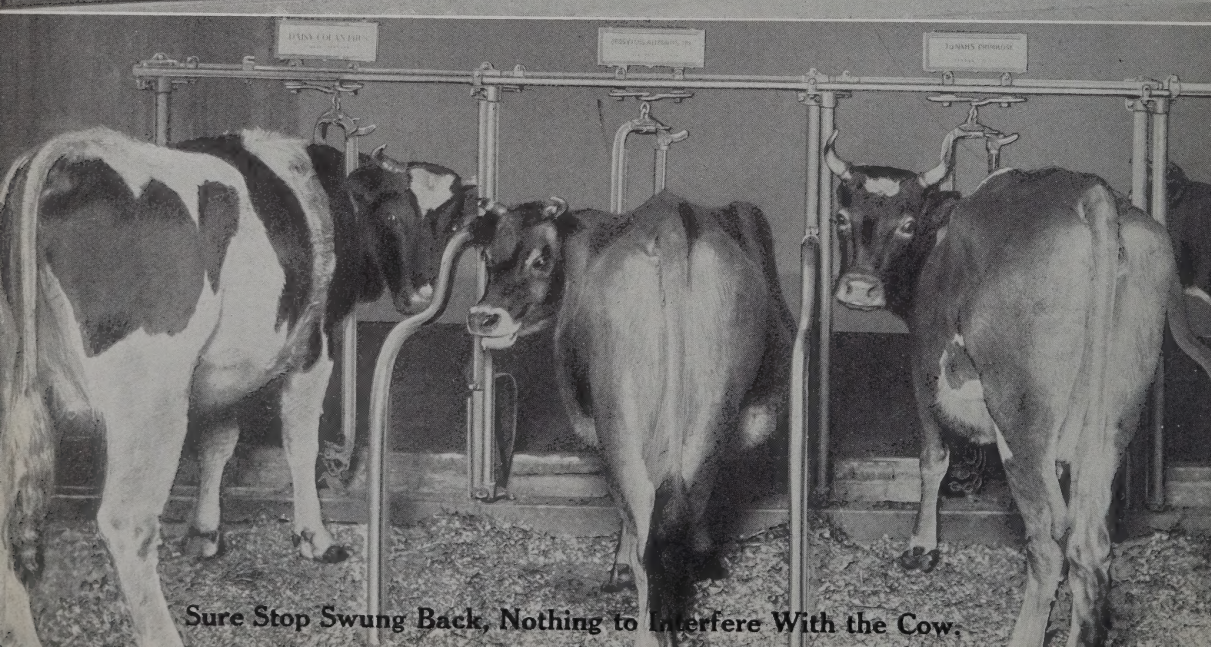
When the cows are locked in the stanchions, by the same easy movement, all the posts are thrown back against the stall partitions, entirely out of the cow's way, giving her unobstructed freedom of movement.



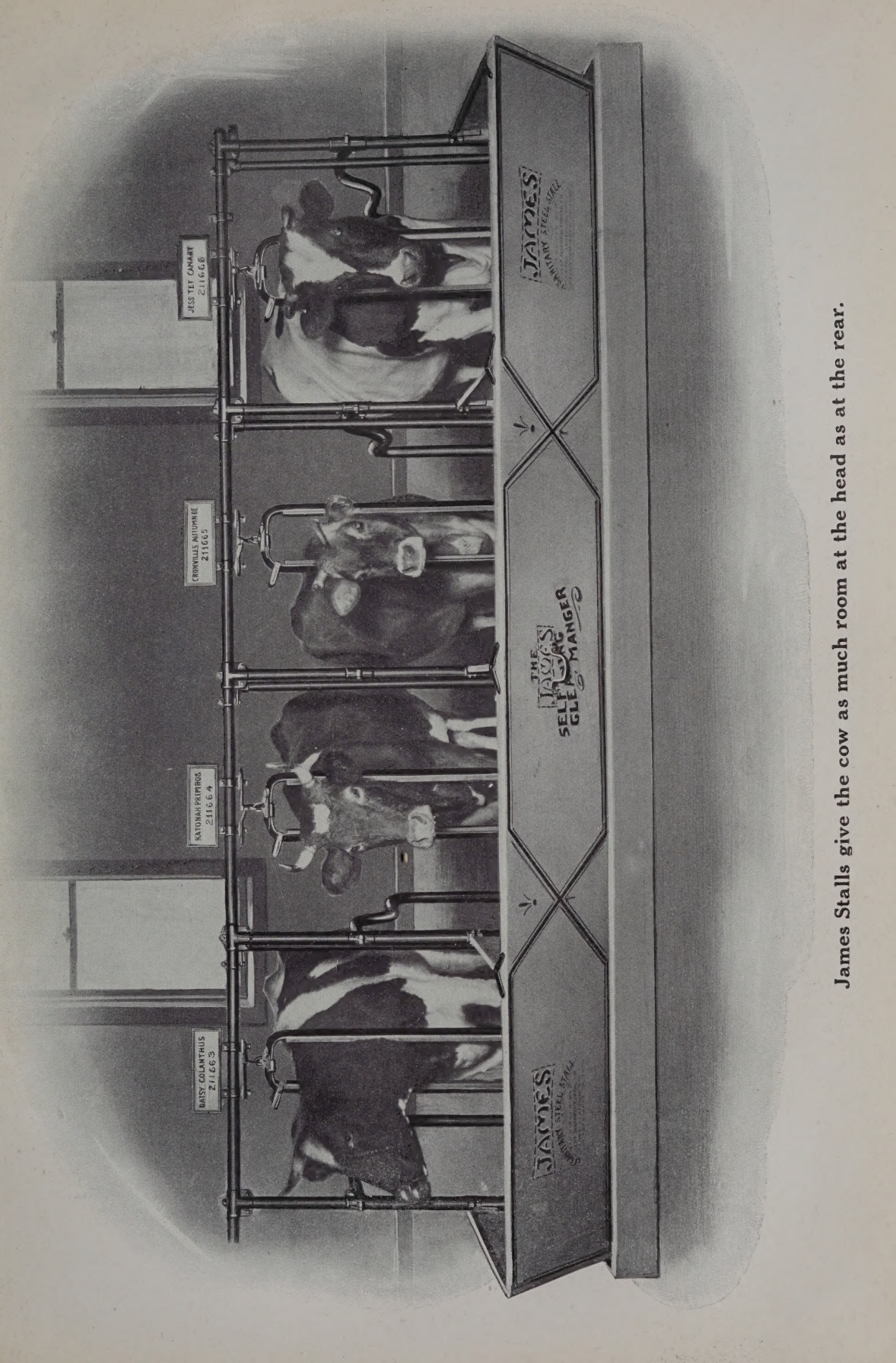
In the James Stall it is Easy to Card Herself on Either Side.



The James Sure Stop Swings Back Entirely Out of the Cow's Way.



Sure Stop Swung Back, Nothing to Interfere With the Cow.



James Stalls give the cow as much room at the head as at the rear.

The Lock Open Device

The Sure Stop Swinging Post of course closes the opening only on the side of the stationary bar of the stanchion; the open arm of the stanchion serves as a stop on the other side.

To prevent the stanchion from swinging when the cow is entering, James steel stanchions are furnished with a U-shaped Lock Open Clip which engages the frame of the stall.

The wood stanchions are furnished with a Chain Lock Open Device which accomplishes the same purpose.

Wood Linings Are Necessary

The wood lining of the James Steel Stanchions add to the cow's comfort, and of course thus tend to increase the milk yield.

The iron or steel, while perhaps actually no colder than wood, feels colder to the touch.

The reason is that steel is a good conductor of heat—it absorbs heat much more readily than wood and gives off heat more rapidly.

Hence when steel comes in contact with the cow's neck, it feels cold and actually does tend to chill the cow because it is continually absorbing heat from her,—heat which you furnish feed to supply.

Wood, on the other hand, takes up heat very slowly, being a non-conductor, and hence does not chill the cow.

A little experiment that will illustrate this fact may be made by simply taking hold of a steel pipe in the barn with one hand and placing the other hand on wood.

Note how long the steel will continue to absorb heat, chilling the hand, and how quickly the wood warms to the hand, ceasing almost at once to absorb heat.

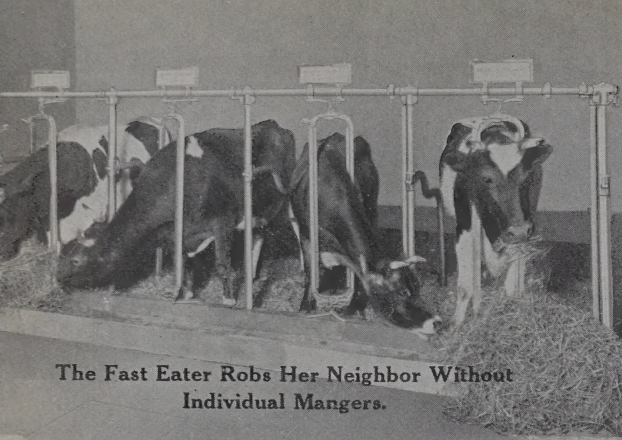
Wood linings never become charged with frost—they are absolutely necessary in a metal stanchion if the comfort of the cow is to be considered.

The wood linings of the James Stanchions are made of thoroughly seasoned birch, carefully milled, shaped and polished; then oiled to preserve the wood.

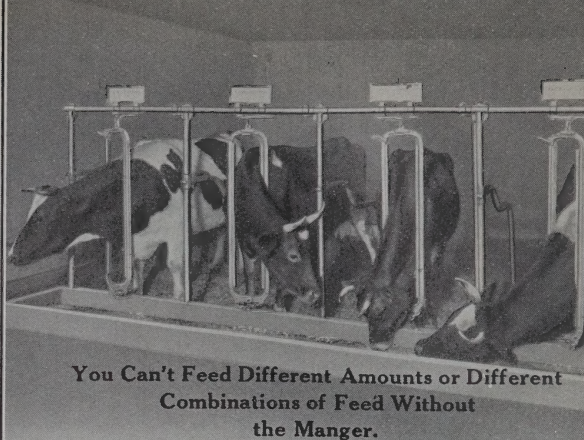
Linings are carefully fitted to the steel tees and securely attached.



James Mangers are Easy to Clean.



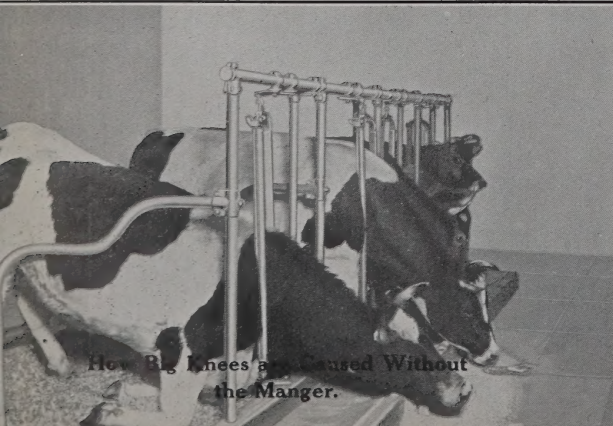
The Fast Eater Robs Her Neighbor Without Individual Mangers.



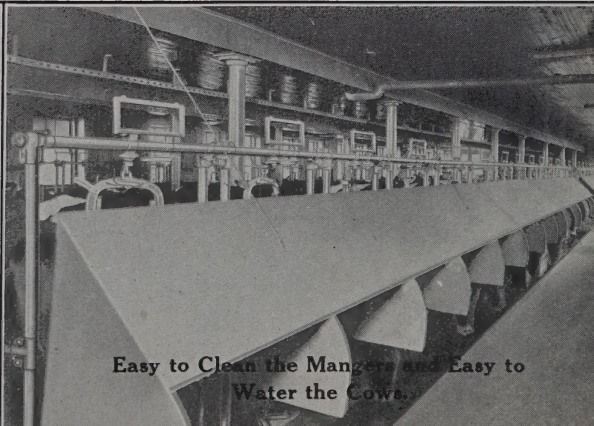
You Can't Feed Different Amounts or Different Combinations of Feed Without the Manger.



No Cow Can Steal From Another if James Mangers are Used.



How Big Knees are Caused Without the Manger.



Easy to Clean the Mangers and Easy to Water the Cows.

The James Individual Manger

(PATENTED)

Not only does the James Sanitary Self-Cleaning Manger enable you to feed each cow individually, preventing underfeeding and overfeeding and troubles incident thereto; but it also does away with the labor required in keeping a rigid manger clean; prevents waste of feed; eliminates the principal cause of big knees; and prevents abortion and other injuries brought on when straining for feed thrown out of the cow's reach or belonging to her neighbor.

Successful dairymen seem to agree that, to get the best results in dairying, each cow must be fed separately.

Scarcely any two cows in a herd require the same amount of feed; and it is just as bad for a cow to get too much as too little.

A cow that gets too much feed may be put out of the profit class for a month.

You can't feed your cows individually on a level floor or in the continuous trough. The cow that eats fastest gets too much and the slow eater next to her gets too little.

Neither produces what she would if fed individually and the heavy eater is likely to be ruined.

Besides overfeeding or underfeeding your cows to their injury and your loss, you waste feed by such a method.

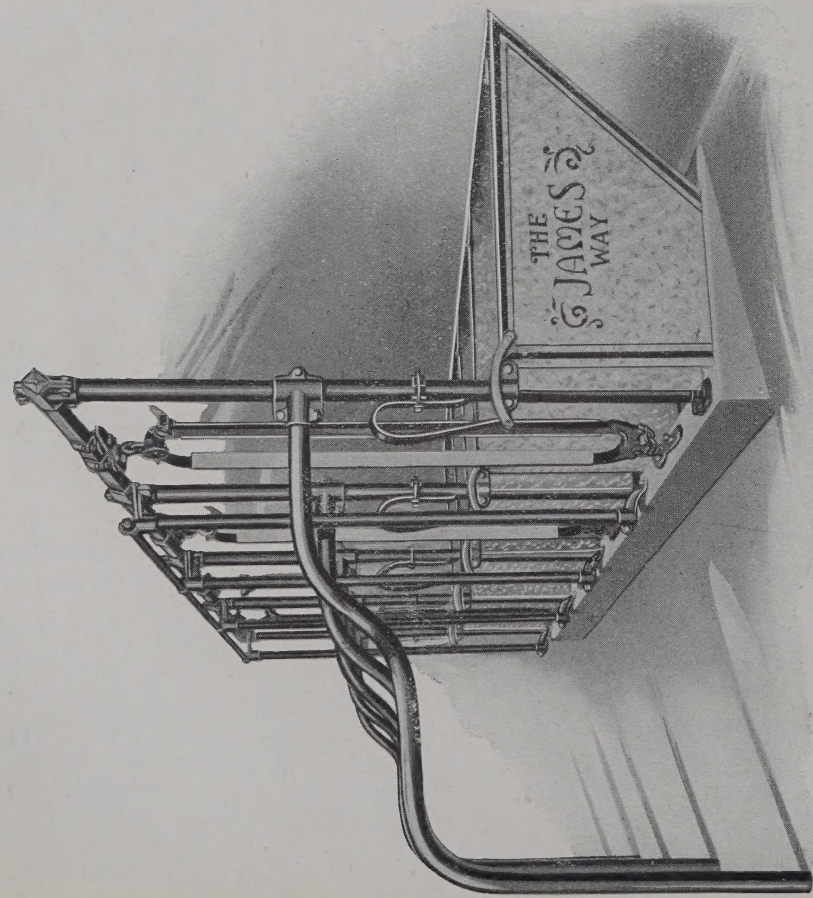
The necessity for individual mangers in order to feed correctly was demonstrated forcefully at the National Dairy Shows. In the feeding test department, the exhibitors using stalls without mangers were required to put in temporary individual mangers. Otherwise they could not meet the conditions of the competition; thus proving conclusively that some kind of a manger is necessary.

Without a manger, it is impossible to feed scientifically, giving each cow the particular combination of feeds, as well as the particular amount, on which she will best thrive and produce the greatest yield.

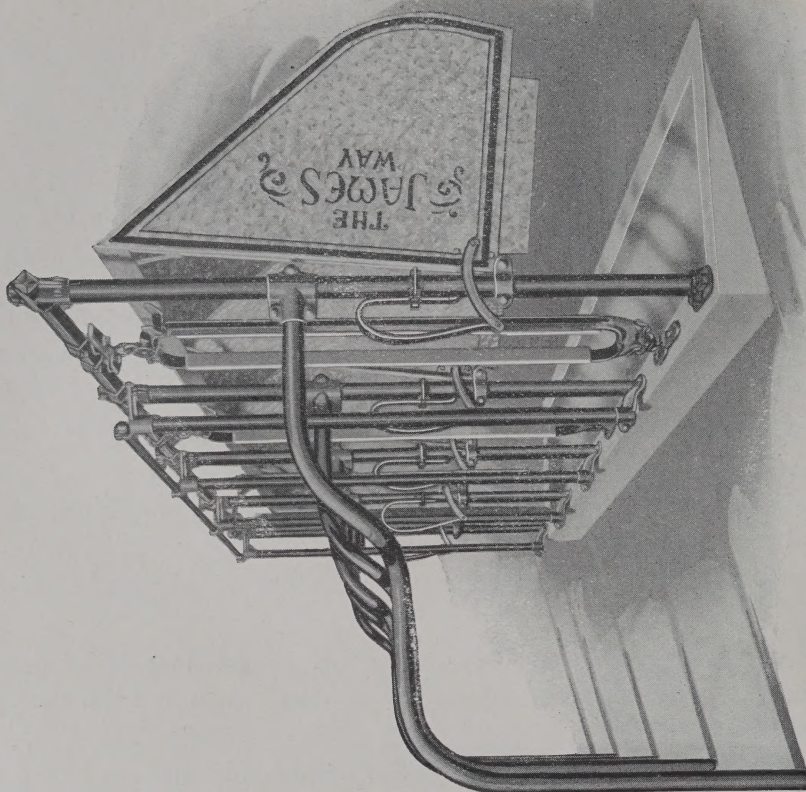
Big Knees on Dairy Cows

The principal cause, almost the sole cause, of big knees on dairy cows, is the method of feeding in flat bottomed mangers or without any manger at all.

If you feed that way, watch your cows. To get all their feed they are obliged to go to their knees to reach it. The knees strike the curb or floor, and, standing in this position for a considerable time during each feeding, the cow develops big or sore knees.



Manger lifting springs are so designed as to prevent cow from raising manger with her horns.



The springs hold the manger up in position when manger is raised.

How Abortion Is Sometimes Caused

Not only are big knees caused in this manner, but in pushing herself forward, striving to reach the feed, the cow's hind feet slip and push her bedding into the gutter.

A sudden slipping of the hind feet, or straining for feed beyond her reach, sometimes causes abortion or perhaps permanent injury to the cow.

The Self-Cleaning Feature

The James Manger has no bottom, a concave trough in the cement floor serving that purpose. The manger is easily lifted, the weight being offset by heavy manger lifting springs.

When the manger is lifted, everything in the trough can be conveniently and quickly swept out, flushed with water if desired and used as a watering trough.

The bottom of the trough is so shaped that the feed comes in exactly the right spot for the cow to reach it most easily, even to the last mouthful—the feed always accumulates in the center of the trough directly under the cow's nose.

The Manger Construction

The manger is constructed of No. 20 gauge best galvanized steel, being proof against rust by moisture, acids in ensilage or other feeds.

The front of the manger, in sections of three stalls or less, is formed from one sheet, both the front and the partitions being strongly reinforced with folded and compressed edges. The front of the manger is bolted to the partitions.

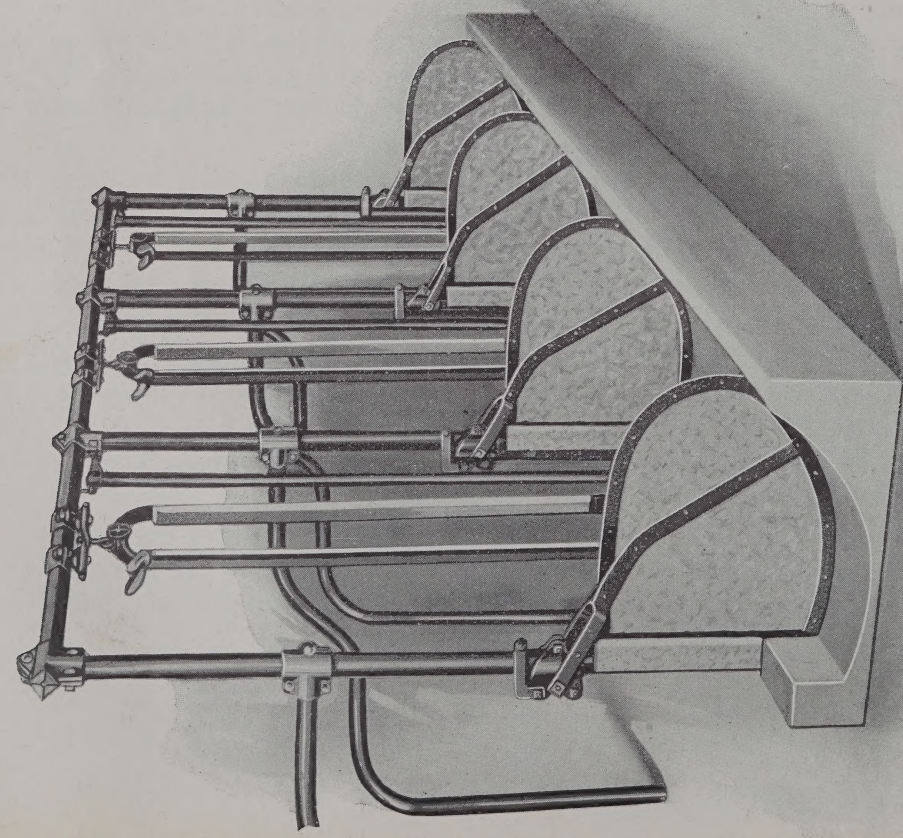
The U-shaped guard which is riveted to the back of the manger partition, overlaps the stall post and holds the partition firmly and rigidly at the back; while the manger front and partitions are reinforced by V-braces.

This rigid construction of the James Manger absolutely prevents any racking and adds years to the life of the manger.

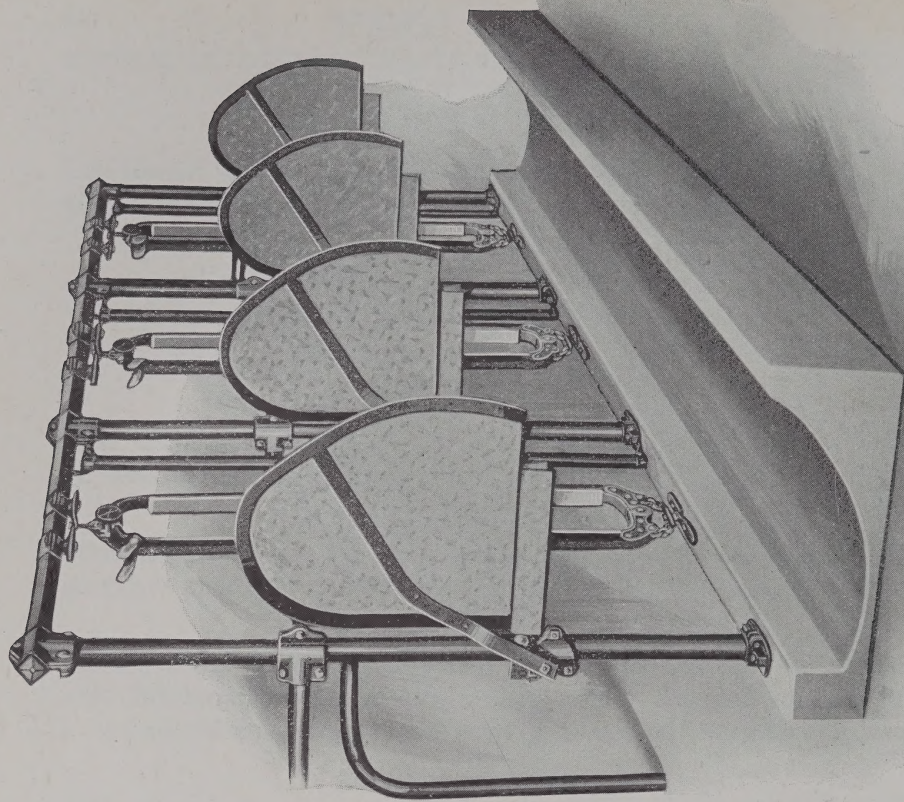
The U-guard also permits setting the stall posts in the center of the concrete curb, so that the curb is not liable to crack—as it is when the posts are set near the edge of the curb.

With all its labor, feed and money saving advantages the James Manger costs no more than a home made one of wood.

Whether you order mangers or not, be sure to obtain from us the wood pattern of exact shape of the manger bottom. This will enable you to make the concrete manger trough so that a perfect fit will be secured if you later decide to have the mangers.



James Manger Divisions.



A strong spring holds division up when raised.

Manger Lifting Springs

The Manger Lifting Springs are so adjusted that when the manger is down, the tension of the springs and the weight of the manger prevent the cow from lifting it.

But when the manger is raised a few inches, past a certain point, the pull of the spring offsets the weight of the manger, making it easy to lift; and then holds the manger up in position.

The springs reduce the strain of the manger, for each spring pulling evenly on the manger partition does away with racking when manger is raised, thus adding to the manger's life.

The springs are of special design of cold drawn, flat spring steel, oil tempered and tested for severe use—the same as the best automobile springs. The tension is easily adjusted, should adjustment ever be needed.

It is sanitary, no pockets in the walls being required as with the weight and pulley, and presents a neater appearance in the barn.

PRICE: James Individual Self-Cleaning Manger, with rounded bottom, four Manger Lifting Springs furnished to each five stalls, price for each stall, \$3.50.

ADDITIONAL ENDS: To finish row of stalls an additional manger partition is required. We furnish this for \$1.00.

James Individual Manger Divisions

In various barns already built, which we have been called upon to equip, we have found concrete mangers of such design that the James Individual Self-Cleaning Manger could not be used.

To meet this condition and make it possible for every dairyman to have individual manger compartments for feeding, we have designed the James Individual Manger Divisions. These can be made special to fit any concrete manger by furnishing us an exact pattern of the trough.

These manger divisions as regularly furnished are nineteen inches high; which is sufficiently high to prevent a cow from stealing feed from her neighbor.

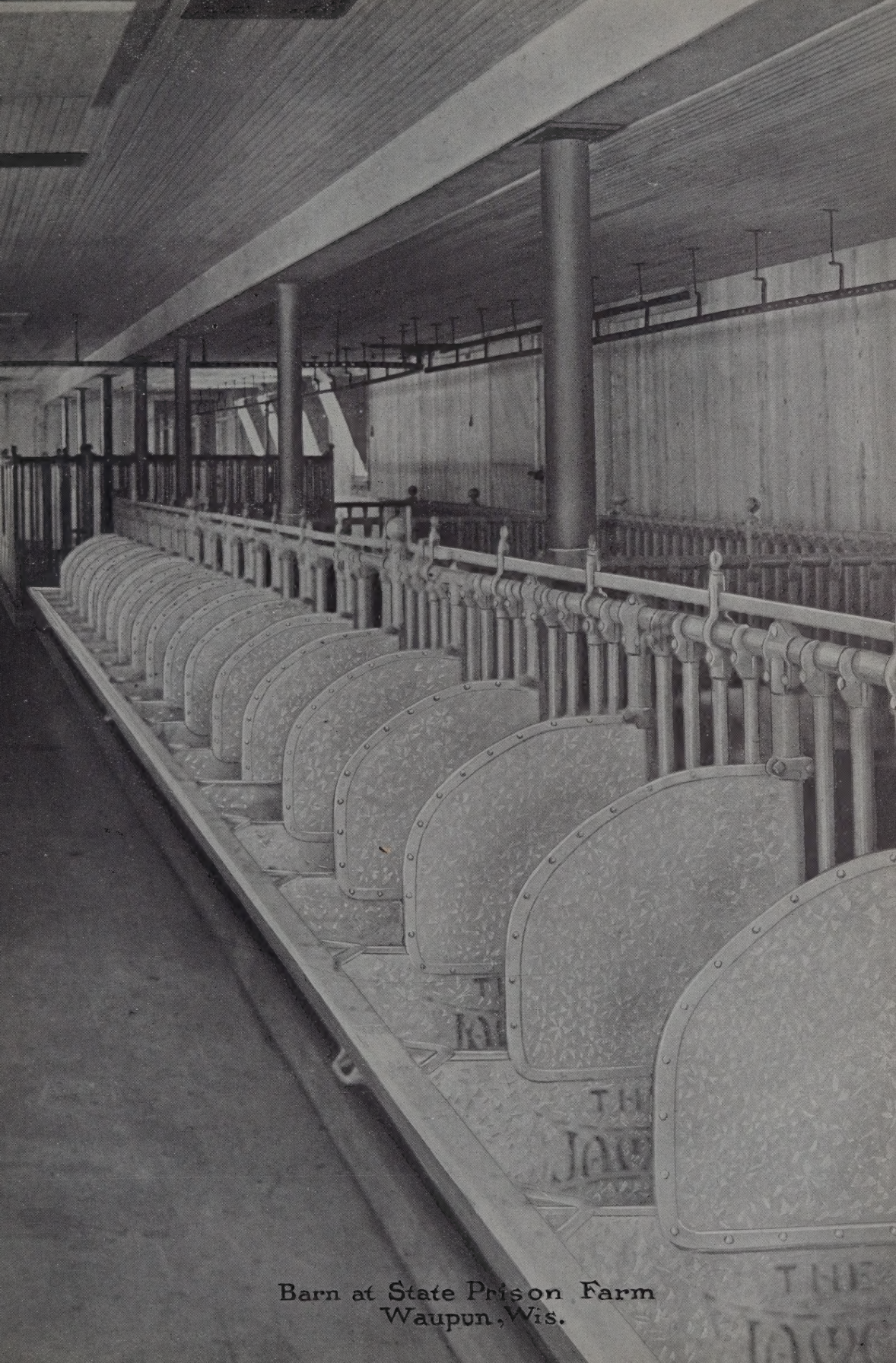
Divisions are made of eighteen gauge galvanized sheet steel, reinforced by $\frac{1}{4}$ x 1" iron. The strong, heavy, malleable hinge will not slip, holds the division firmly in position, and the U-clamp fitting around the stall post when division is down, holds the division rigid.

When raised the division is held in place by an ingenious holder.

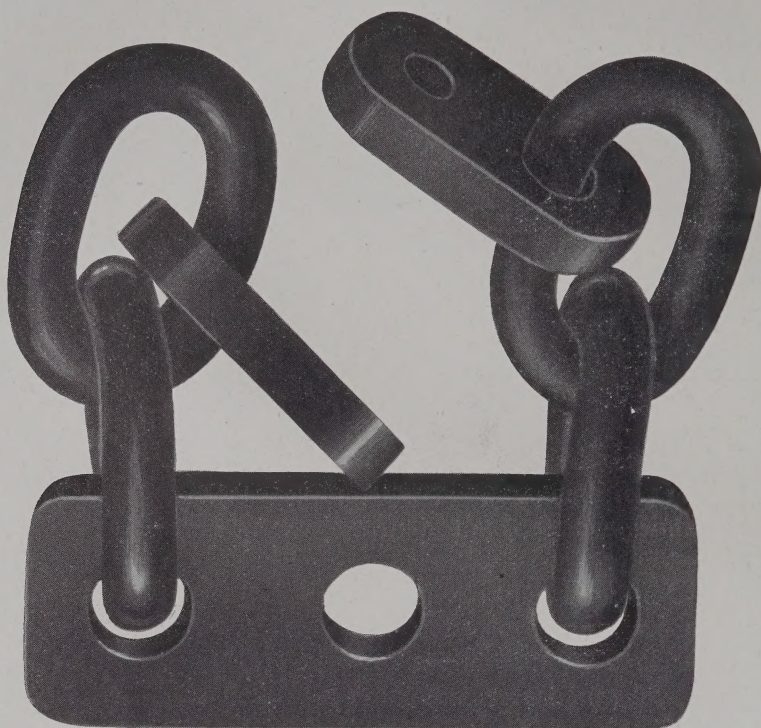
The cuts on the opposite page illustrate the manger divisions; the manger curb can be built as desired.

PRICE: James Individual Manger Division, regular size as illustrated, each \$1.75.

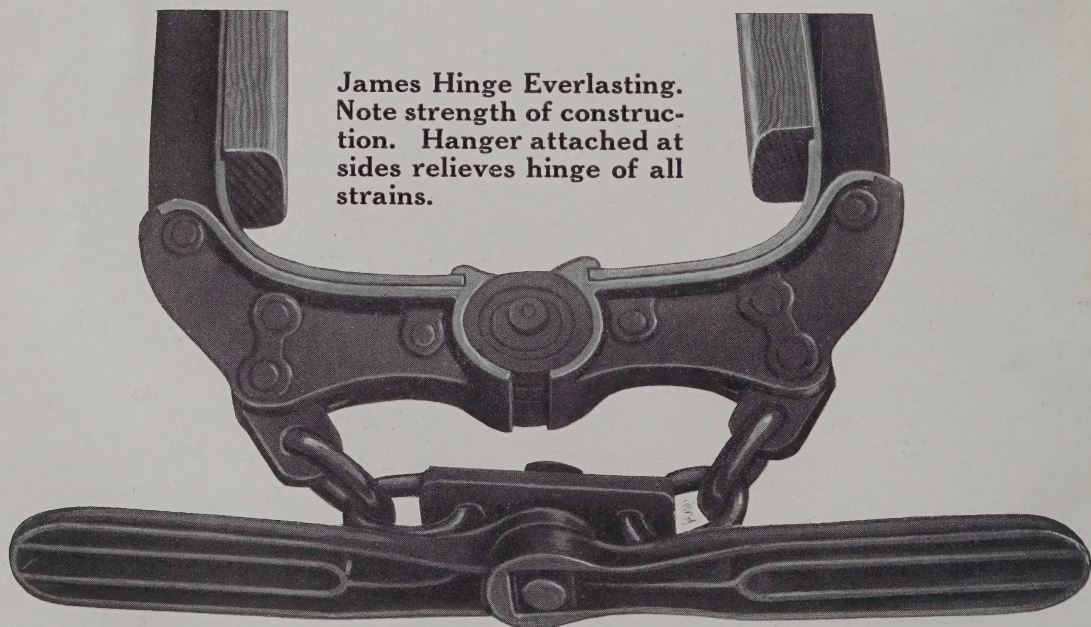




Barn at State Prison Farm
Waupun, Wis.



Actual size of James Double Chain Hanger Links.



James Hinge Everlasting.
Note strength of construction. Hanger attached at sides relieves hinge of all strains.

The James Double-Chain Hanger

(PATENTED)

The James Double Chain Hanger enables the dairyman to save money when putting in the concrete floor and rounded curb—saves feed all the time—and lessens labor in taking care of the cows.

When building the curb, a great deal of labor and material is saved if the curb can be built level all the way through the barn. It takes time and wastes material to cut away the curb in each stall; for the wood concrete form must be cut to the shape of the opening desired, and this spoils the lumber for other purposes.

Besides, the cutaway curb disfigures the stall and opens wide a door for great waste of feed.

Before the invention of the James Double Chain Hanger, it was not possible to build the curb level, high enough to prevent the waste of feed without lifting the stanchion so high that it seriously interfered with the cow's comfort when lying down.

To solve this difficulty the James Double Chain Hanger was invented.

It permits the building of a level curb, six inches high, preventing the cow from nosing the feed out of the manger, back under her feet.

At the same time, the stanchion hangs low enough so that the cow's head will be not over 10½ inches above the stall floor when lying down, which is the cow's natural position; and the stanchion has sufficient play to permit the cow to rise without bruising her shoulders.

The Double Chain Hanger also prevents objectionable side play of the stanchion, preventing the cow reaching over into her neighbor's manger.

This James invention accomplishes another important improvement, by separating the chain hanger from the hinge.

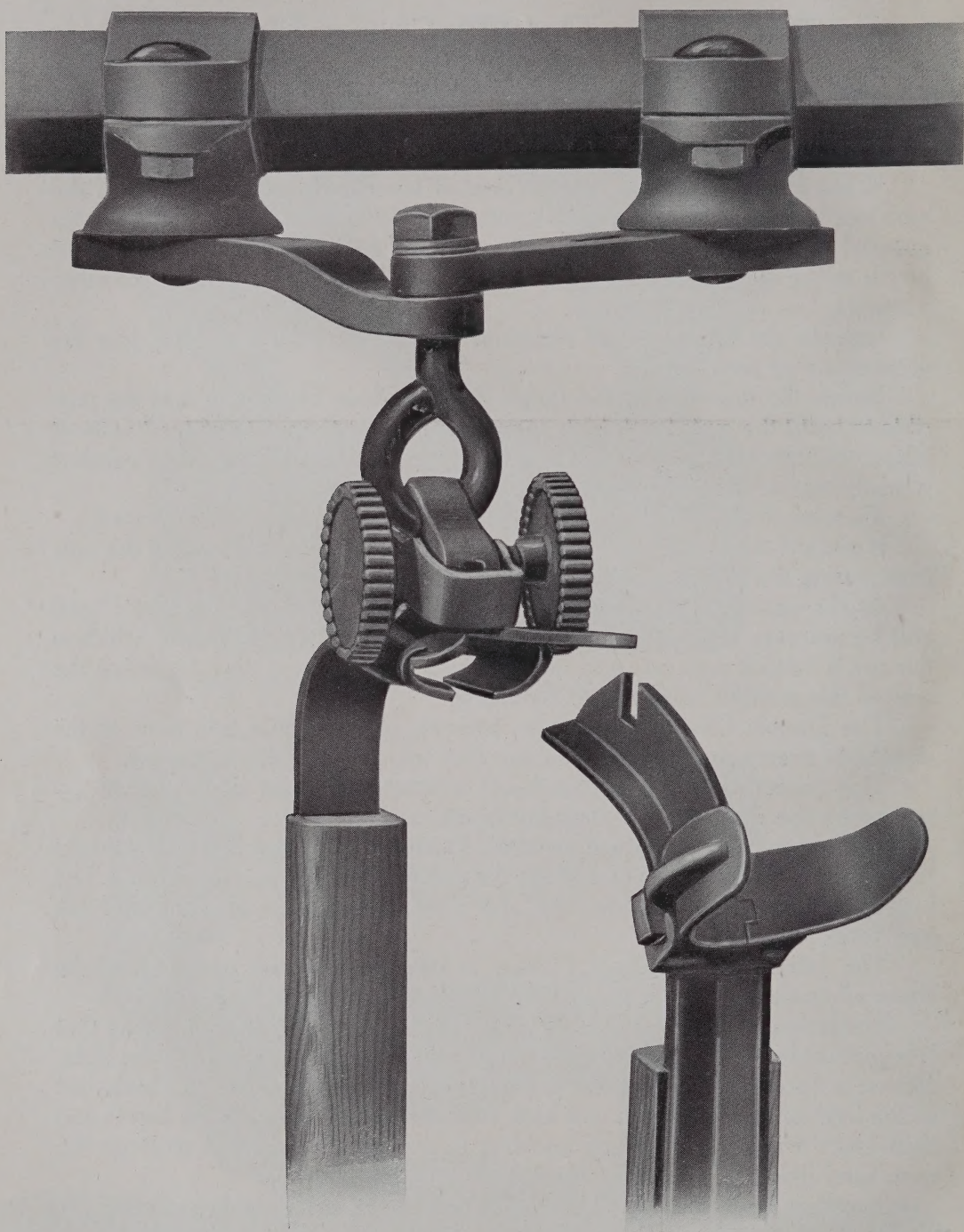
The old way was to attach the chain hanger to the hinge itself, thus weakening the stanchion at the point where the greatest strength was required. The hinge got all the strain and leverage, and in time, like a piece of wire bent back and forth, would break.

The James Double Chain Hanger is attached like tugs to a hame—the strain all comes on the side bars of the stanchion and not on the hinge itself.

The links of the James Double Chain Hanger are hung in such a way that it is impossible for the chain to kink, causing wear and a weakening of the links. Where a slack single chain is used, the links will oftentimes buckle and kink, just as the links of a watch chain will kink when held slack between the hands and then given a quick jerk. The buckling throws great strain and wear on the misplaced links.

Another advantage of the Double Chain Hanger is the absence of noise.

The Double Chain Hanger used in stanchion No. 14J is furnished with flat steel links at the points where attached to the alignment irons and the stanchion. The flat steel link lessens friction and resists wear.



The James "Door-Knob" Lock.
Cow-Proof.

The Hinge Everlasting

As "a chain is no stronger than its weakest link" so a stanchion is no stronger than its vital part—the hinge.

The hinge in a James Stanchion is almost everlasting. It is a two-piece, interlocking, continuous hinge of best malleable, with a very wide bearing surface which gives it remarkable strength.

It has many times the strength actually necessary; and with the hanger chains attached at the sides of the stanchion relieving the hinge of all undue strains, absolute assurance is given that the hinge will withstand the most severe use.

The Cow-Proof Locks

If a stanchion is to be worth anything at all, its lock must be cow-proof.

A stanchion that a cow can open is a source of danger and a constant cause of trouble.

Only a man who has had the experience knows how big a nuisance a stanchion lock can be when it is not right; for it takes but a very little time for a cow, loose in the barn, to do a lot of damage.

The James Locks are guaranteed to be right in every way, cow-proof—yet easily opened by an attendant even when wearing heavy mittens or gloves. May be opened quickly from the front or from the rear of the stall. Simply slamming the stanchion shut locks it securely.

The "Door-knob" type of James Lock shown on the opposite page is furnished only with Stanchion No. 14J. Opened just as you would turn the knob on a door. It opens easily even though the cow throws her weight against the stanchion—yet no cow can open it.

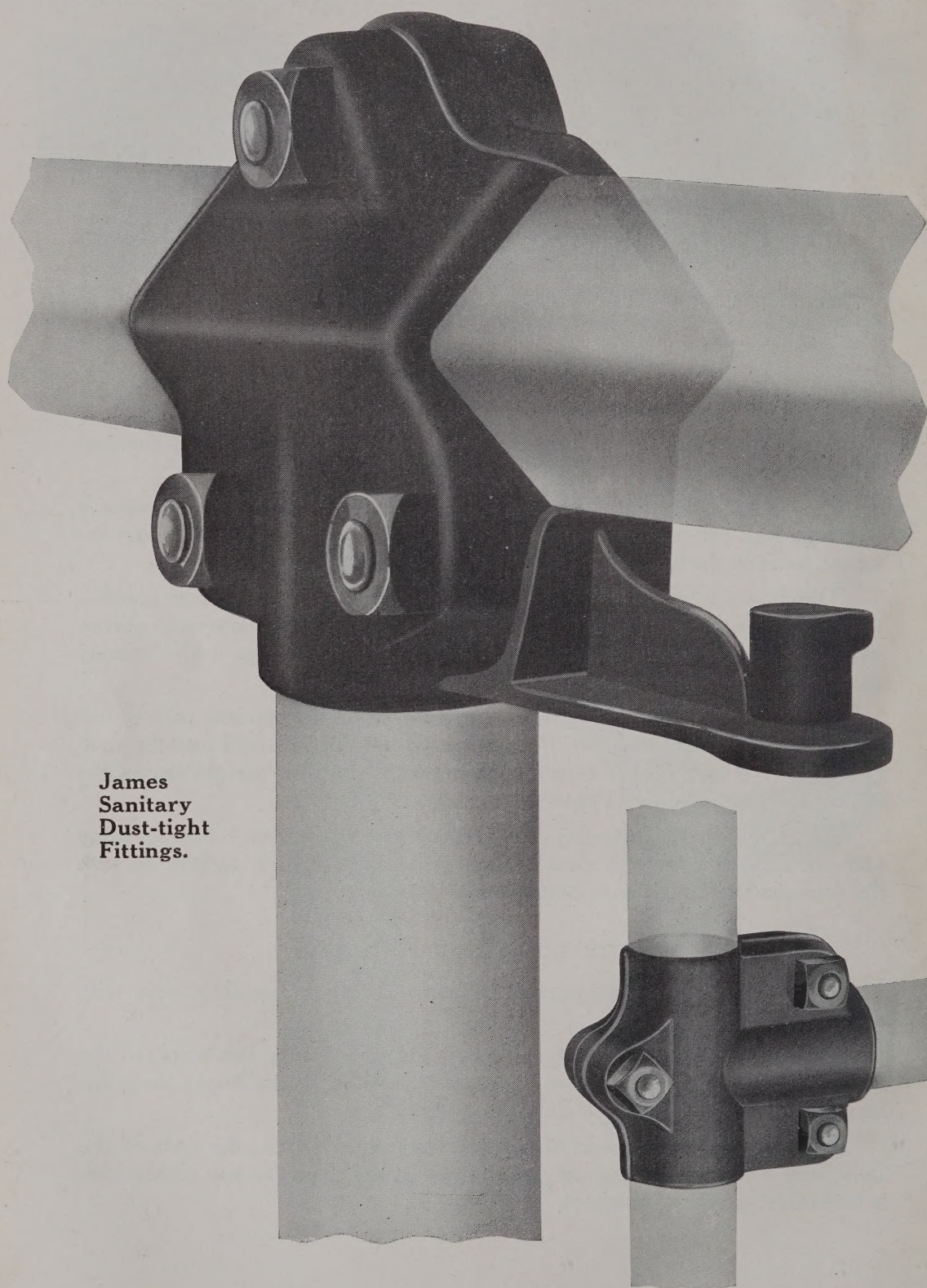
The James locks are safety locks from every standpoint. For economy and efficiency they are in a class of their own and have had much to do with the supremacy of the James Stanchions.

James Sanitary Fittings

All the fittings on the James Steel Stalls are of the sanitary type, with overlapping flanges.

The illustrations on page 46 show how the edges of the two pieces of the fitting overlap in such a way that when drawn together by tightening the bolts, no openings are left in which dust can collect.

The openings at the ends of the horizontal square pipe, the ends of the Sure Stop Posts and of the rod connecting the sure stops are also closed with a malleable, sanitary ornament.



**James
Sanitary
Dust-tight
Fittings.**

Square Piping

The square piping is used for the horizontal—the alignment device will not twist on the pipe, even when the bolts on the fittings are not drawn tight.

James Stall Partitions

A prominent veterinarian tells us: "Not a week passes but that I am called to treat a cow with a badly injured teat or udder, having been stepped on when lying down, by the cow next to her."

You yourself have doubtless known many a valuable cow thus ruined.

No careful dairyman will be without stall partitions for they are invaluable protection for both the cow and the milker, if the partition be of the proper design.

A partition that is too short or that is not of the right shape to afford protection to the cow is, of course, merely a brace for the stanchion frame and is an encumbrance to the stall.

With such a partition, the cow, when lying down, is exposed in a way that a neighbor may tramp on her udder. This happens not only in stalls without any partitions but in stalls where the partitions are short and incomplete.

And, of course, if the partition does not protect the udder of the cow, it will not protect the milker from the cow behind him.

The James Triple Curve Stall Partition, on account of its length and peculiar shape, makes such injuries impossible. It protects both the cow and the milker, at the same time bracing the stanchion frame and doing away with all ceiling posts and supports; keeps the cow from moving away from the milker; prevents her from swinging around so that the litter falls on the platform; and prevents two cows from lying down in such a position as to prevent a cow in between them from lying down at all.

The downward curve of the James Stall Partition permits the cow to turn her head and leave the stall more quickly and easily than she can with the single radius partition.

The James Partitions are made of steel piping—they will neither bend nor break. The flange at the bottom binds stall and floor firmly together. This flange—to be had only with the James Partitions—will not work loose from the concrete. Partitions which are spread a little with a punch, making the end bell shaped, work loose very quickly, breaking up the concrete at the anchorage and rendering the partition of no practical value.

James Partitions are of steel piping $1\frac{5}{8}$ " outside diameter, the length being three feet six inches. Furnished with both wood and steel stalls. Fastens to wood stanchion frame with hook bolts and to steel frame with our special malleable fittings. Height of partition can be regulated to suit the breed of cows, by setting partitions deeper in the concrete for the smaller cows.

The Easy James Way of Erecting Barn Equipment

The pictures on the following pages tell an interesting story of the greatest advance in barn equipment, since the time Mr. James first originated the essential features of the cow stall.

It is a plan that reduces the whole proposition of erection to one of absolute simplicity.

This new James idea makes so simple and so easy the setting up of cow stalls, and bull, cow and calf pens, that no experience is needed.

It enables any man who is building or remodeling a barn to go right ahead, with the cementing of the floor, without waiting for the arrival of the equipment itself.

No delays—no grief while waiting for equipment—no concrete men idle because the material isn't on the ground or because some necessary parts have been lost in transit.

You Can Start Cementing Tomorrow

The identical principles of barn building and barn equipment that we—as originators—have been presenting to the dairy world from year to year remain as they were.

All the basic ideas that have brought success to barn owners are preserved.

We simply make James Equipment better than ever before by providing a new and easy way of setting it up—a way that makes it unnecessary for you to hire skilled help—a way that makes it unnecessary to delay your cement work or other building operations a single day.

James Anchors Only Thing Needed

When ready to begin cementing the floor, all you need to have on hand in the way of barn equipment is the required number of James Anchors.

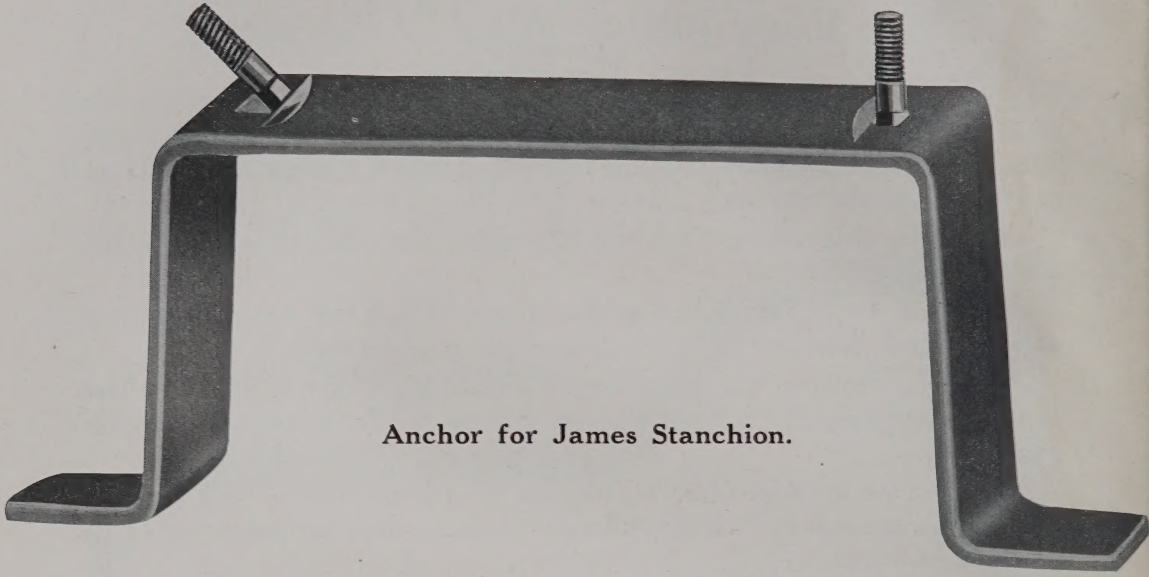
If your cement men are ready to go to work, have them come ahead.

You will be ready for them—the James way—because you need only James Anchors to begin work.

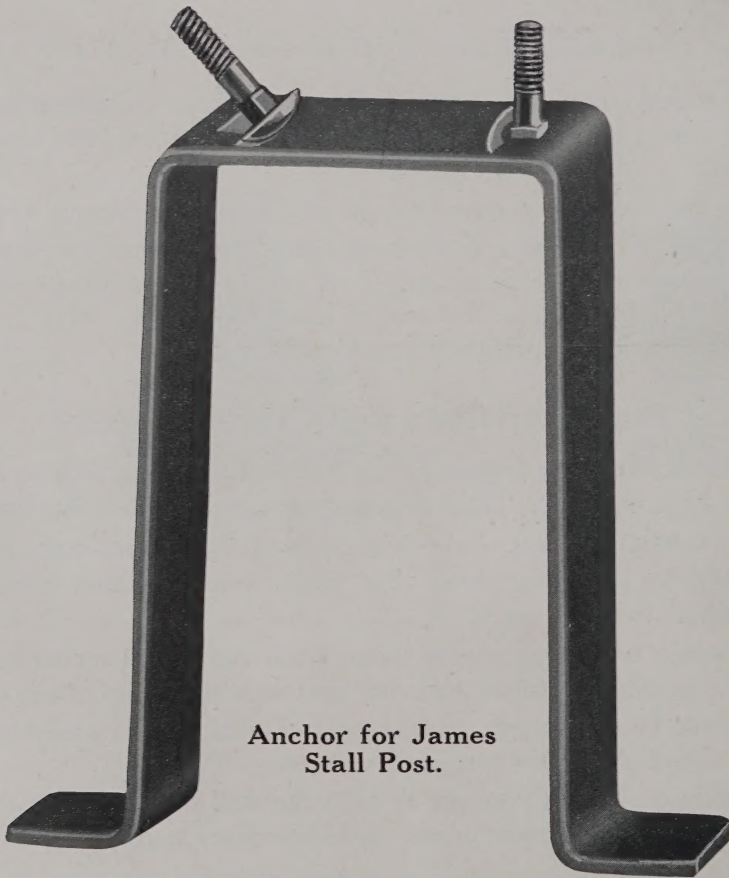
The anchors when you receive them, have templates (anchor spacers) attached—the templates being scored and marked, with nail holes already drilled.

You mark off the proper spacing on the form for the concrete curb, according to simple directions furnished with each job.

The anchors—which later are to hold the stall posts and stanchions—are set in the form at the proper points, nailed in place and the form filled with concrete.



Anchor for James Stanchion.



Anchor for James
Stall Post.

You can then go ahead finishing up the cement floor. The stalls and pens may be set up at any time later when most convenient.

When the concrete is set, the templates are removed and thrown away and the stalls may be quickly bolted into place.

On account of the shape of the anchors the curb is less liable to be cracked by the expansion and contraction of the metal than it is when the upright pipe extends through the concrete curb.

The stall anchors reinforce the concrete curb and extending two inches into the floor, bind the curb and the floor together.

Assembled Stalls—Knocked Down for Easy Handling and Convenience in Erection

No boxes filled with small parts—no long lists of little pieces—no complicated directions—no difficult checking to see whether you are short anything or not.

Instead, the equipment reaches you assembled—the fittings bolted in their proper places on the piping. To put the stall together, you simply loosen the bolts in the tee fittings, insert the uprights, stall partitions and other parts of the stall—then tighten the nuts.

You can't go wrong in erecting the new James Equipment. No expert help is needed. One man can do it all, and the work of erecting is so simplified that it takes but a very short time.

Quick Shipment of Anchors

You can get the anchors immediately—by express if you need them at once—from Fort Atkinson or from some nearby distributing point.

For the convenience of our customers and to provide quick service, stocks of James Anchors will be carried in many places throughout the United States.

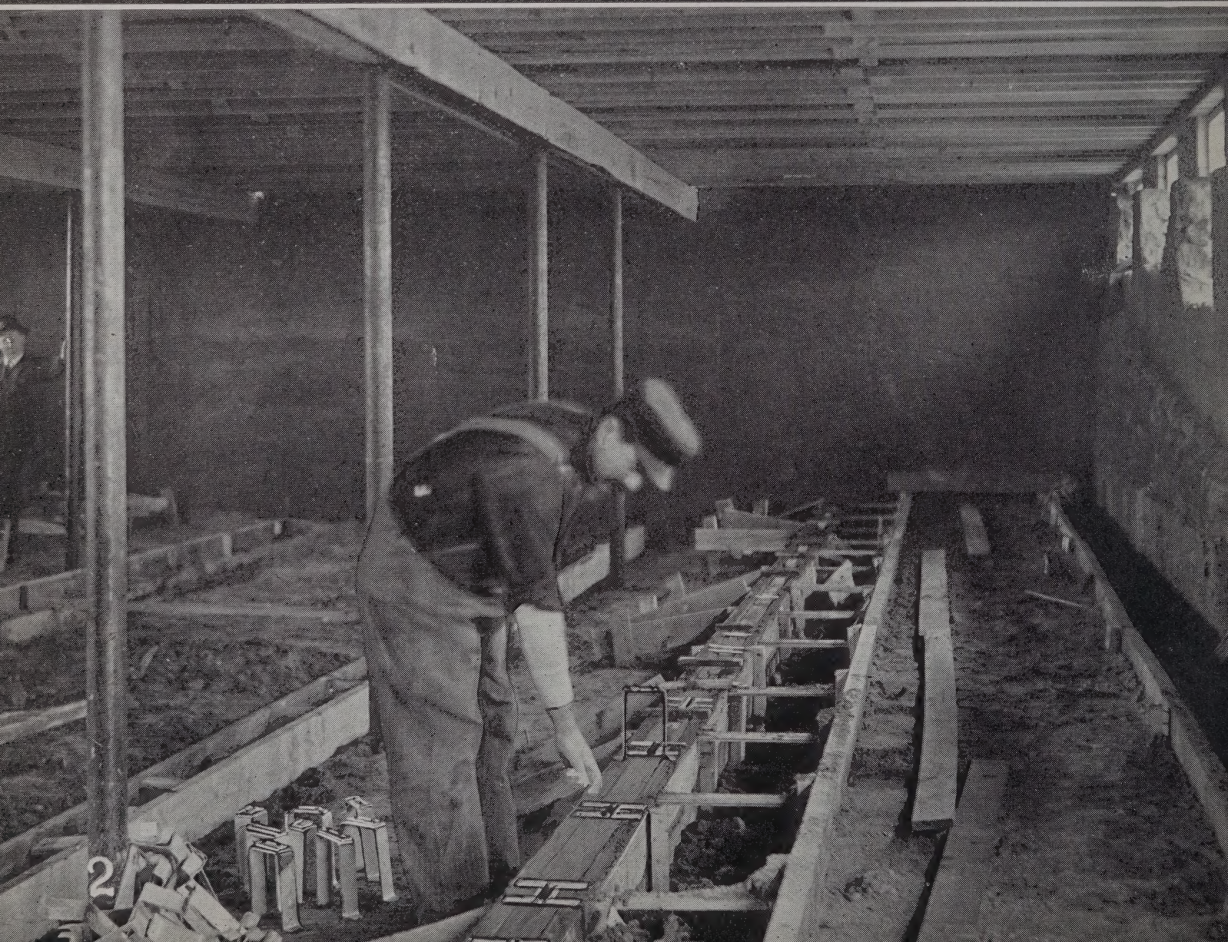
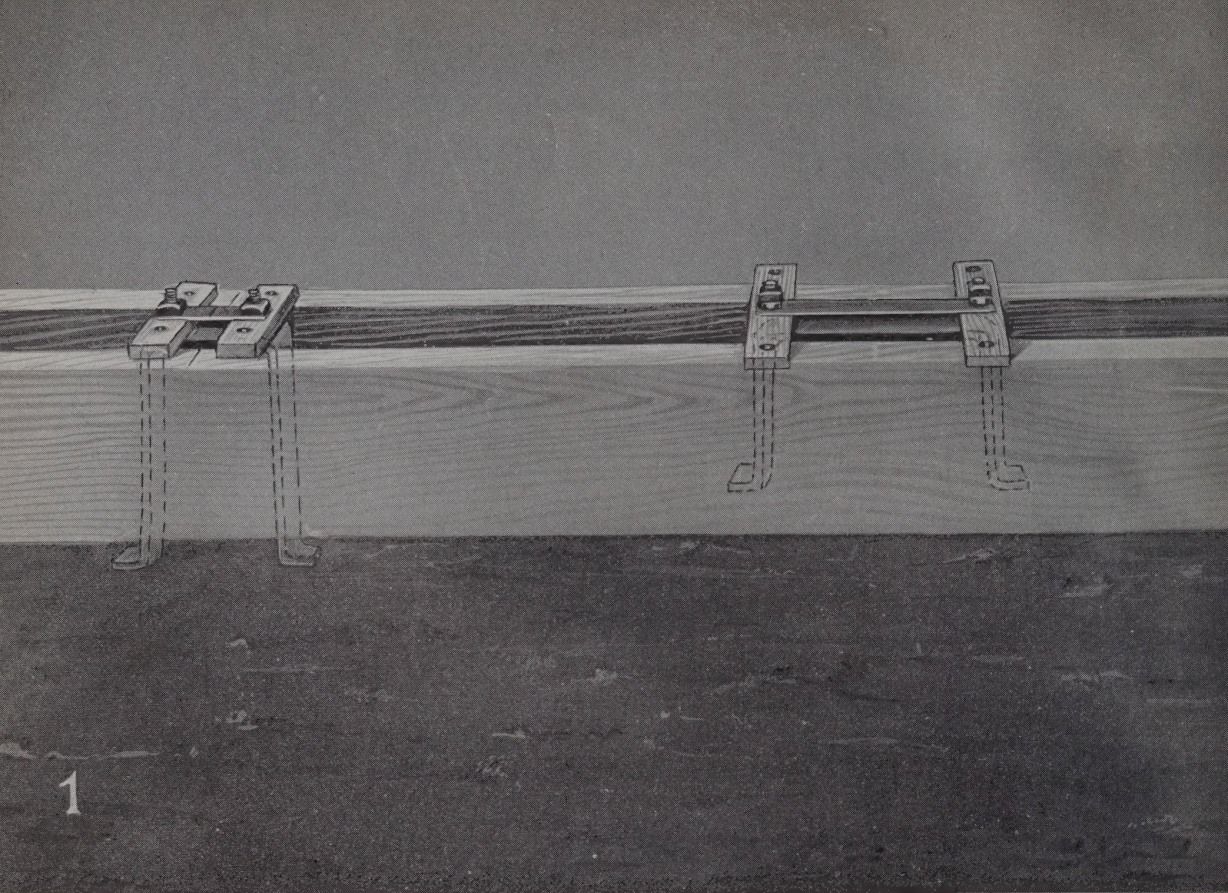
Almost without exception, regardless of where you live, it will be possible to deliver the anchors to you at your express station within twenty-four hours, should you need them that quickly.

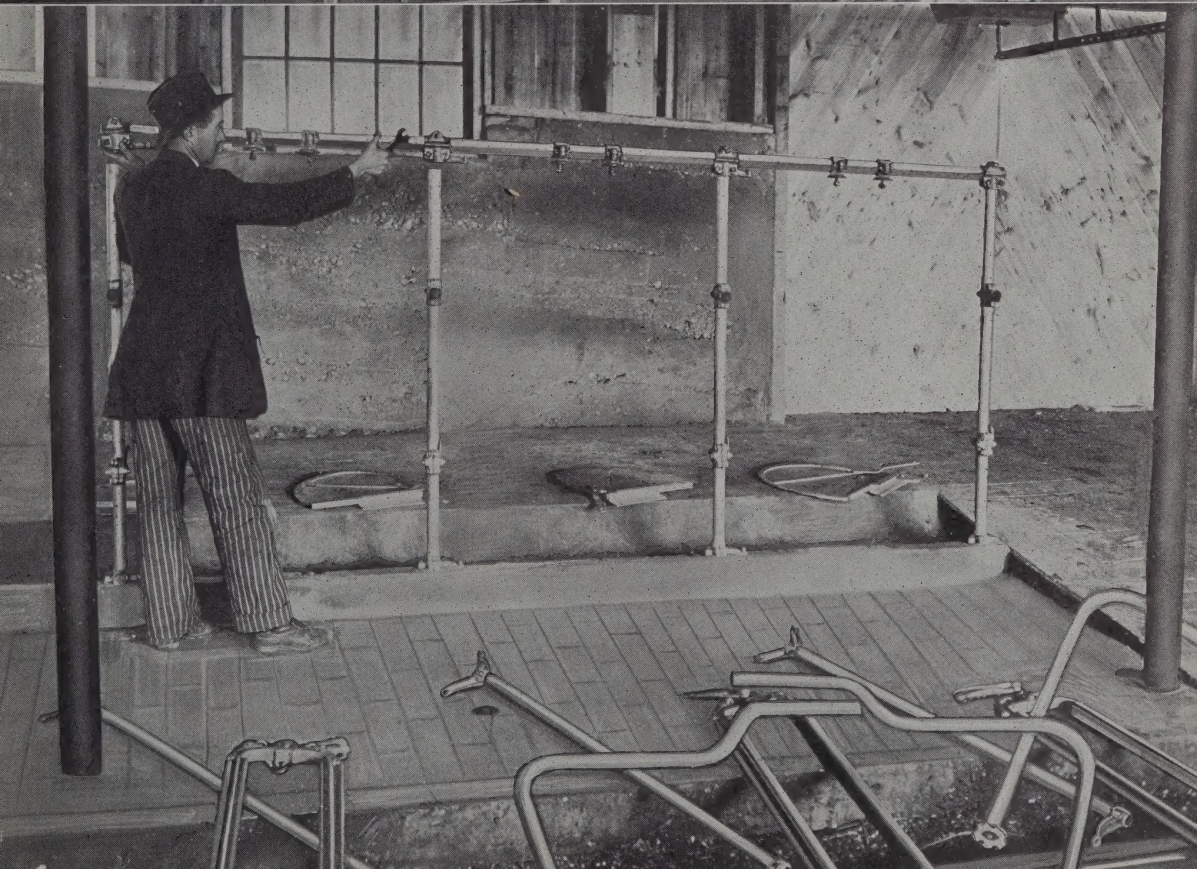
Setting Up the Stalls

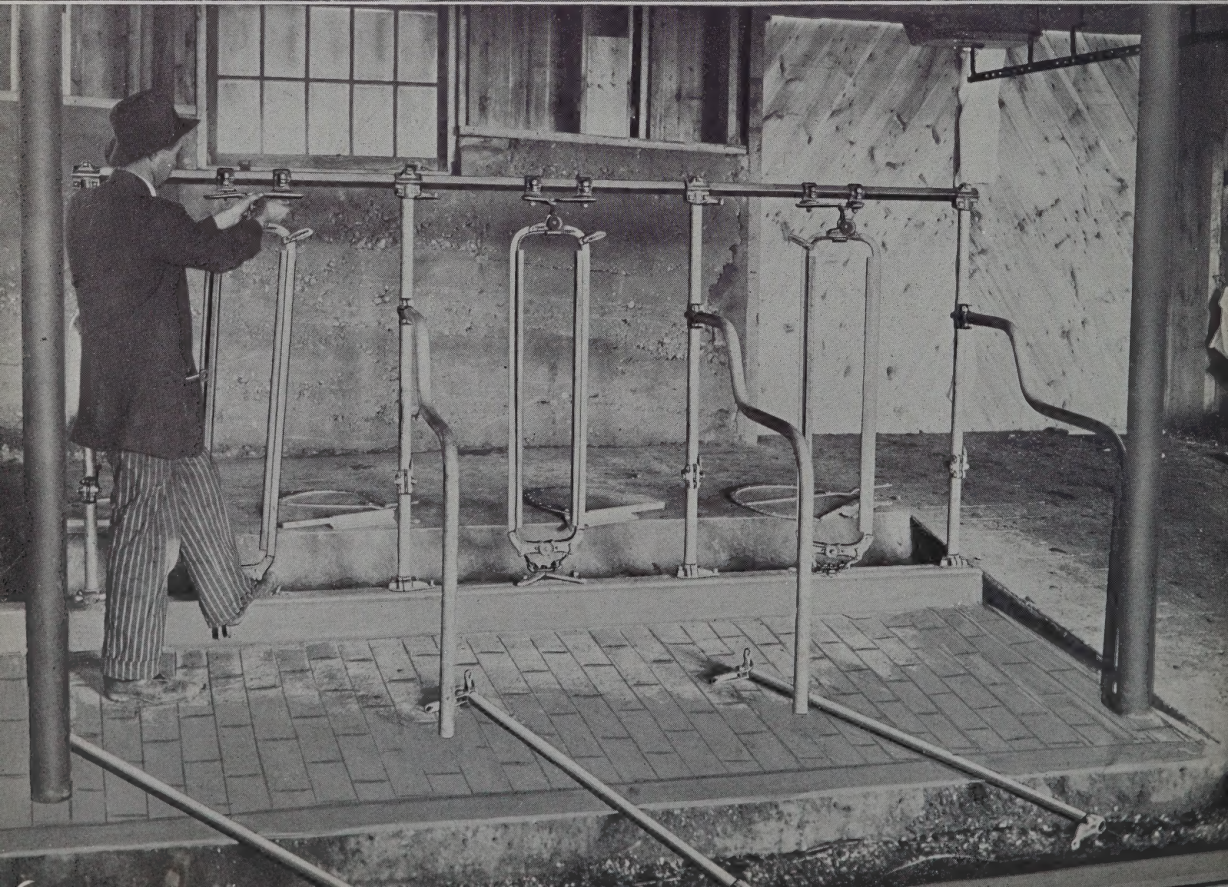
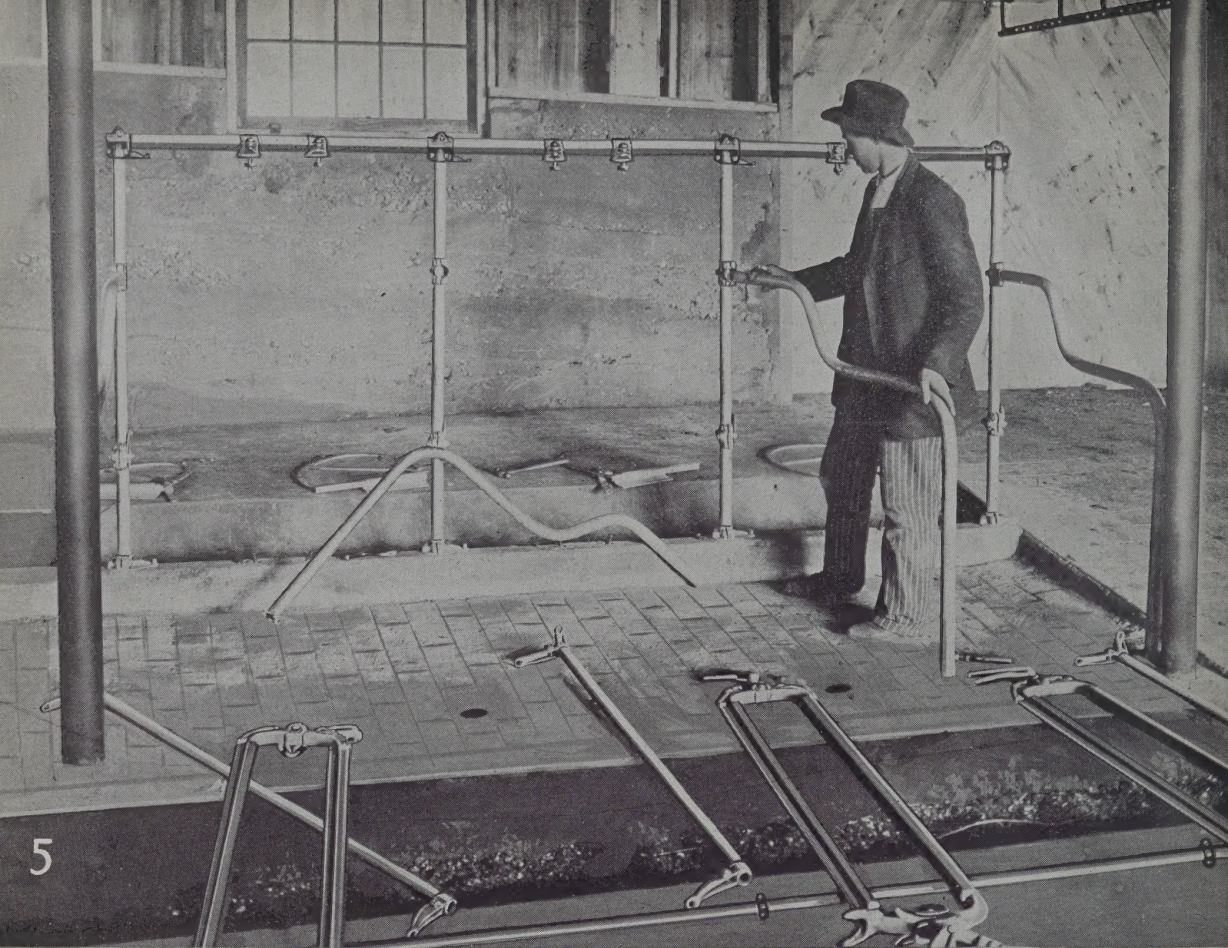
Even in the pictures it is difficult to show how simple it really is to set up the new James stalls and pens. All the fittings are put in place on the stall posts, partitions, horizontal bars, sure stops and sure stop connecting rods at the factory, before shipment. There is no searching for the proper parts—no lost parts—everything is simplified so that a boy can understand it all.

Picture No. 1 shows the anchors with templates attached set in the concrete curb form, ready for the concrete to be poured.

No. 2 shows anchors in place and the form filled with concrete.







No. 3 shows a man attaching stall posts to the bolts in the anchors in the concrete curb.

No. 4. The square horizontal pipe is next put in place on the stall posts and the nuts tightened.

No. 5. Attaching the stall partitions—one end being bolted to the stall, the other imbedded in the floor.

No. 6. The stanchion is easily attached to the anchor provided for that purpose, and to the fittings on the square horizontal pipe.

No. 7. The sure stop swinging posts are quickly hung on pins which form part of the fitting at the top and at the bottom of each stall post. This is more clearly shown on page 27.

No. 8. The rod connecting the full line of sure stops is easily attached to the sure stop posts.

No. 9. The manger division is easily put in place.

No. 10. When self-cleaning manger is ordered, the manger lifting springs are put in place on the stall posts before leaving the factory.

No. 11. The manger is shipped knocked down for convenience in handling. The manger front and manger partitions may be quickly bolted together without difficulty and manger attached to the hinge fittings on the stall posts.

No. 12 shows how the manger and stall looks when complete.

Setting up of the James pens is just as simple, it being necessary to set only the corner and gate posts in the tubular anchors and bolt the panels to the posts. See page 98.

How James Equipment is Finished

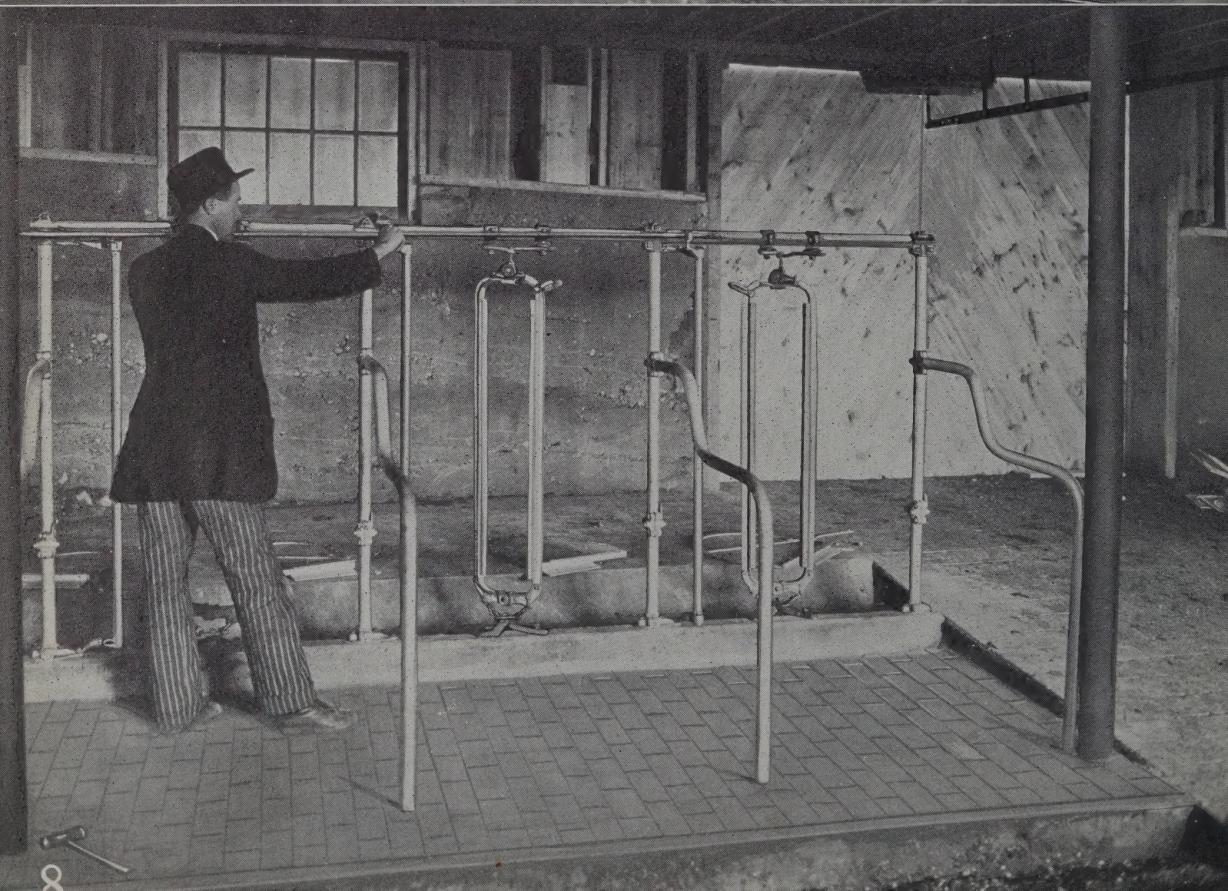
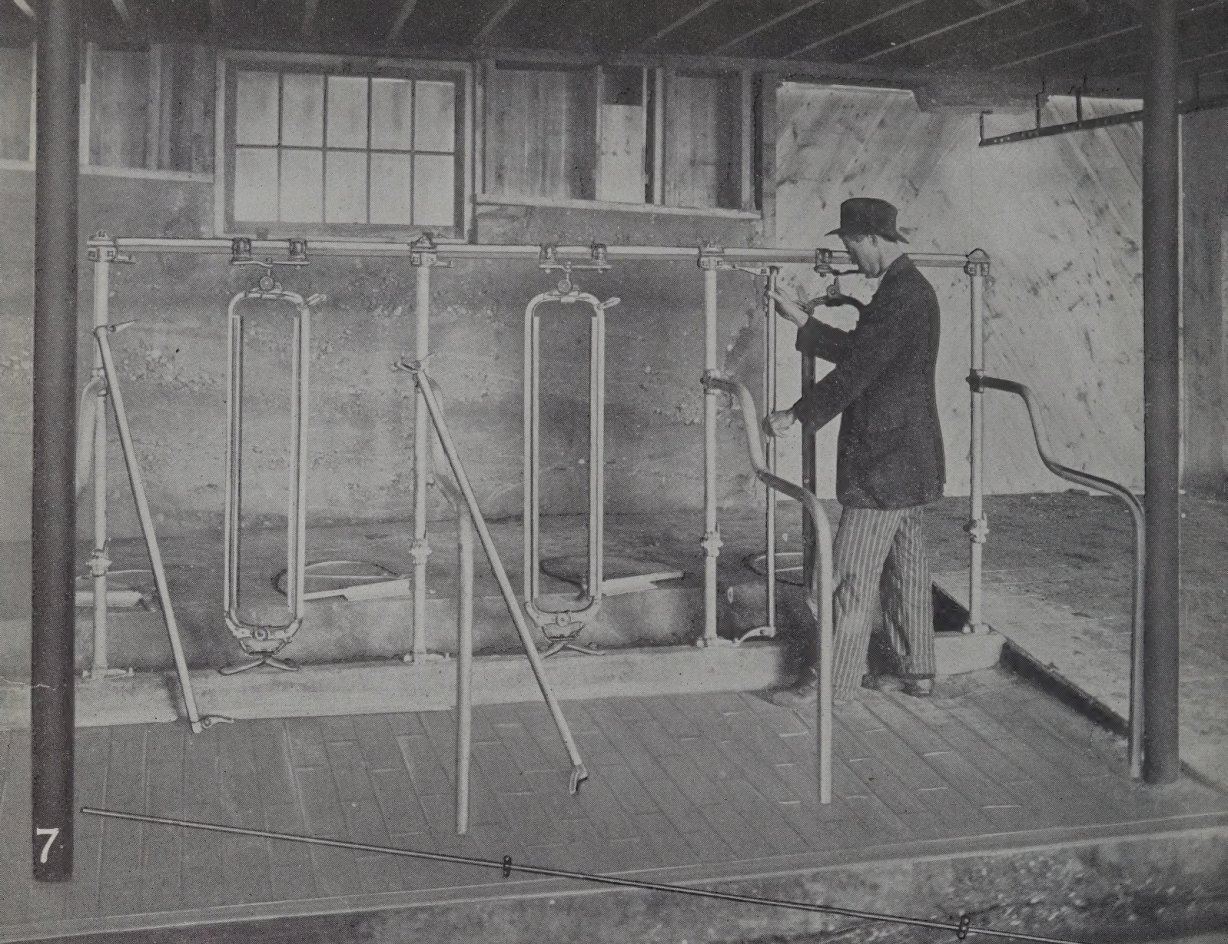
All James stalls, stanchions, bull pens, calf pens and cow pens are finished in the color known as battleship gray, this color being most suitable because it gives a handsome finish that will not soil easily and helps make the barn lighter.

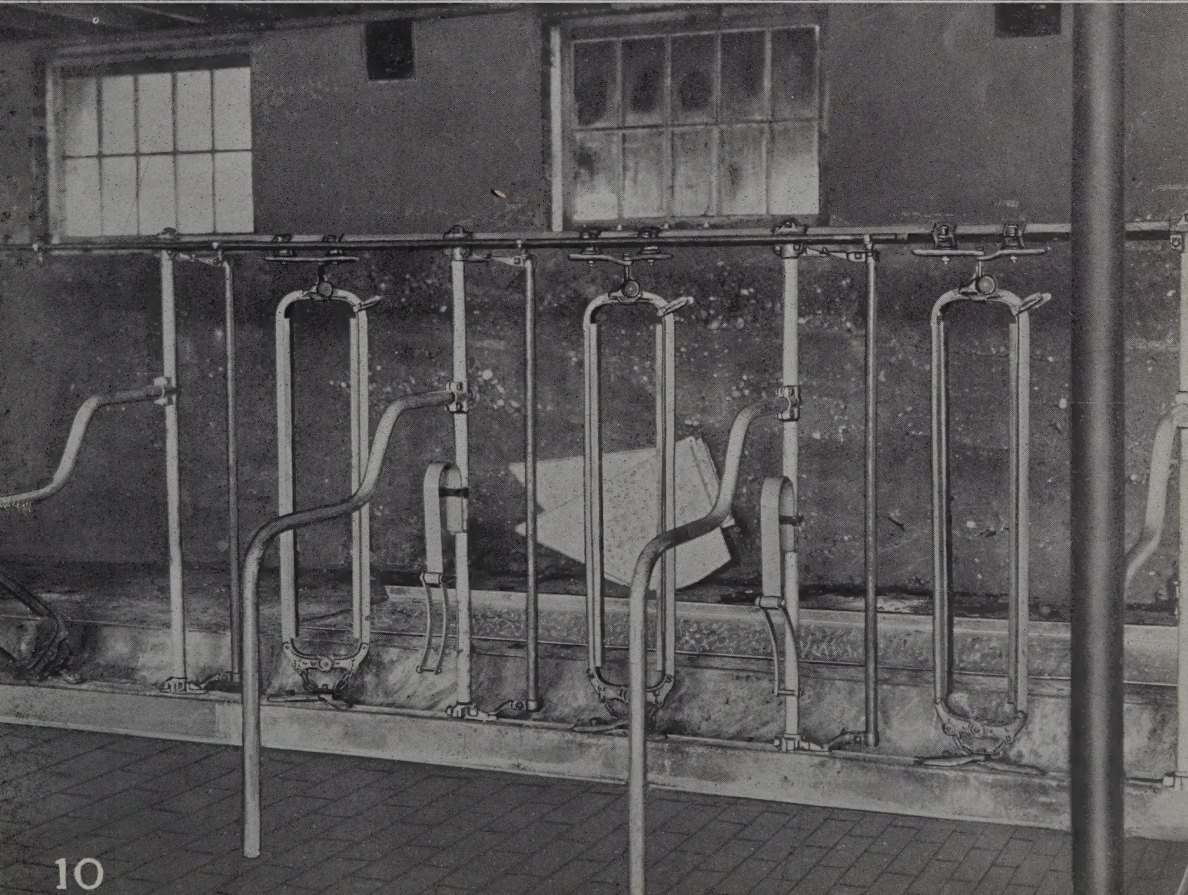
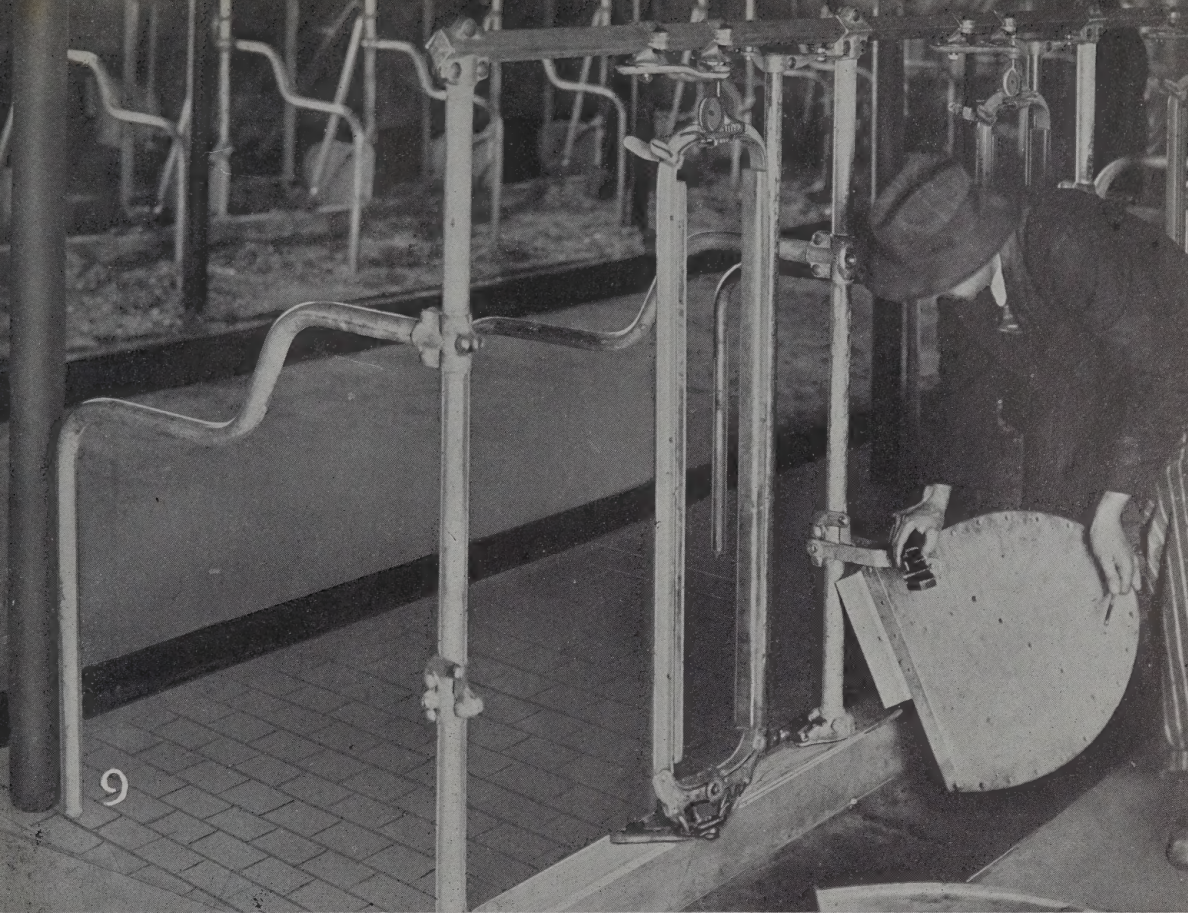
The metal is first mechanically cleaned, removing scale, grease and foreign matter, thoroughly preparing the material for painting.

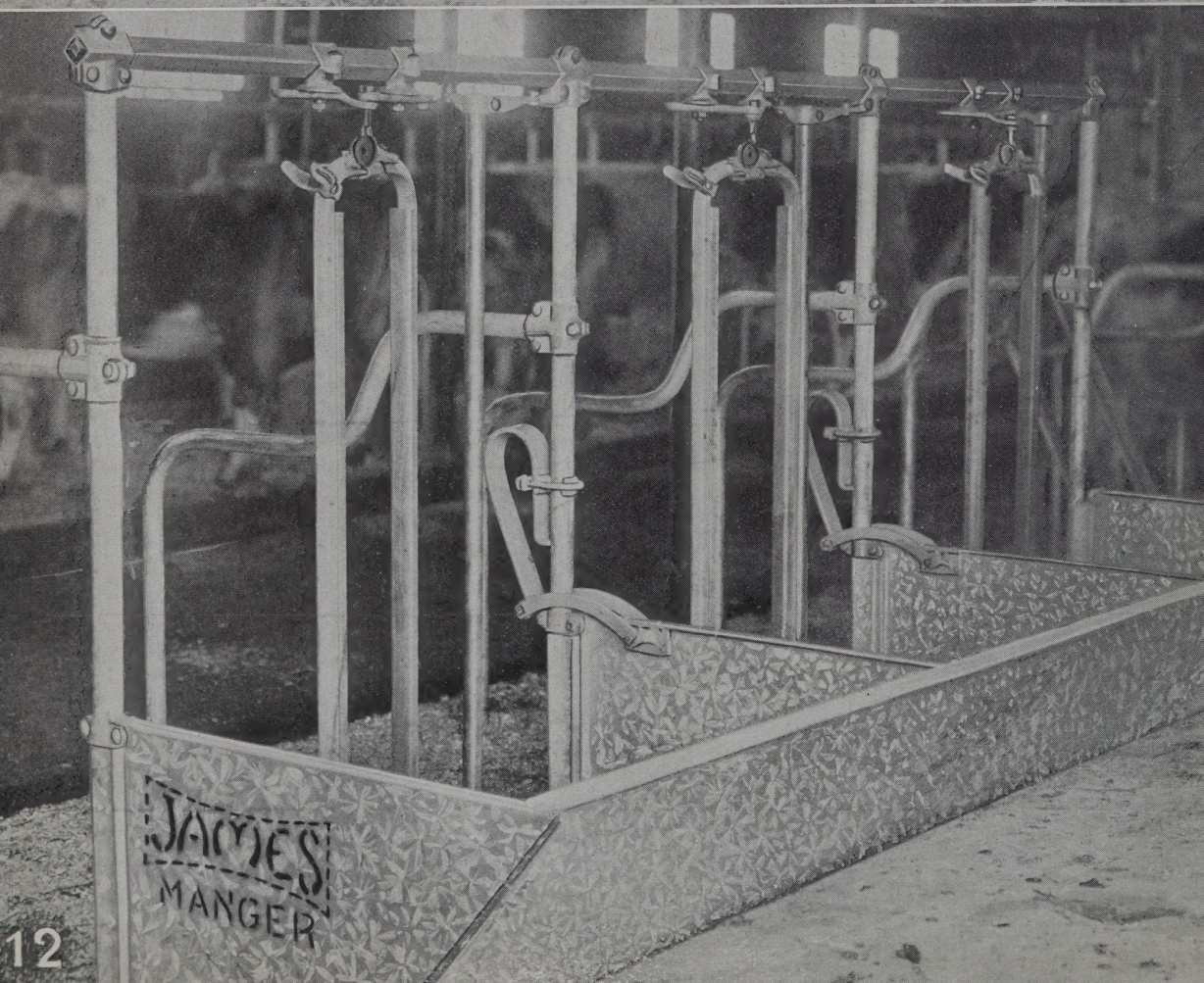
A primer coat of best quality is first applied and thoroughly baked. This is followed by a coat of the best quality enamel thoroughly baked.

The hard glossy surface of the enamel, baked on, gives a lasting protection—one that will resist blows without flaking off. It is the same as the finish on the exposed metal parts of the best automobiles.

All piping receives the two coats baked on, not only the outside but the inside as well. If desired the galvanized finish will be supplied, at a higher







price, but from the experience we have had we believe the enamel baked on will give a more satisfactory covering.

Our experience has shown that the electro galvanizing is not satisfactory; and the hot process of galvanizing, on account of the heat required, makes the malleable fittings brittle. The surface also is not smooth and is less easily kept clean. We therefore recommend the enamel, baked on.

Mangers and carriers are always furnished galvanized.

If You Use Wood Stalls

If you decide on wood stalls, you will of course use concrete floors and curbs. You can, at slight expense, build the wood stalls so that you may later change to steel stalls if you so desire.

By using the James Anchors in the curb, the bottom of the wood frame can be bolted to the anchors; and easily removed at any time later by simply removing the nuts.

The steel stalls can then be bolted to the anchors.

I will say that I put in the concrete and installed this outfit with my own hands. Am very proud to show it to my neighbors. It is certainly fine and dandy.

Fairmont, Minn., December 7, 1914.

Yours to please,

SIMON SANTEE.

August 11th, 1914.

James Manufacturing Co.,
Fort Atkinson, Wisconsin.

Dear Sir: My father bought the James sanitary stalls and he was very well pleased with them.

I am 16 years old and I put them up all myself without the help of any one. The day they came I went to the station and got them and had all but the mangers on before he saw them. I followed your directions and found it very easy and I'm mighty proud of them, for they certainly are great.

Yours respectfully,

Harmarville, Pa., Box No. 34, R. F. D. No. 1.

ROBERT J. PORTER.

James Manufacturing Co.,
Fort Atkinson, Wisconsin.

Gentlemen: Everything went together very satisfactory. I plumbed every post with a level when I put it up, then the horizontal bar went on easy; everything fit right to the mark, the tees fit the four inch posts good and snug, the whole line of stalls was as straight as a die.

Thanking you for good service, I remain,

Yours very truly,

CHAS. T. HAAK.

Ripon, Wis., December 11, 1914.

Testimonials

CURES LAME COWS

Vincennes, Ind., April 17th, 1913.

James Manufacturing Co.,
Fort Atkinson, Wisconsin.

Dear Sirs:—The James Equipment in my barn is giving satisfaction in every way. I have experienced no difficulty with it whatever.

I have heretofore used rigid stanchions and have had a great deal of trouble with cows getting stiff and lame when confined any length of time. Since moving into my new barn with James swinging stanchions have not had a bit of trouble and have had the cows as long as three weeks at a time, and not even turning out to water.

Yours truly,

WILL S. ALEXANDER.

MORE COMFORT FOR COWS

Lebanon, N. Y., Feb. 10, 1914.

James Manufacturing Co.,
Fort Atkinson, Wisconsin.

Gentlemen:—I take pleasure in writing you in regard to the stanchions I bought of you last fall. Anyone in need of stanchions should surely buy the James as there is more comfort for the cows during the long winter days in the James stanchion than in any other kind of stanchion.

The Sure Stop is a great feature and should not be overlooked by the one who is intending to erect new stanchions. The double chain hanger is another great feature as it prevents the cows from reaching after the grain of the next cow.

Yours truly,

FRED EVANS.

ALIGNMENT ALONE WORTH MORE THAN OTHER STANCHIONS

The James Equipment in my barn is giving satisfaction in every way, and I have never experienced any difficulty with it; if I were equipping a new barn again I would put in sure stops.

The alignment feature on the James Stanchion is worth more to me than any stanchion I have yet seen on the market. James Equipment saves me money by giving cows more freedom and comfort and by saving time in cleaning.

Otego, N. Y., April 7, 1913.

JOHN HERRING.

ALIGNMENT DEVICE ALONE WORTH PRICE OF STANCHION

The James Equipment in my barn is giving satisfaction in every way.

The cows keep cleaner in every way. The alignment device is worth more than the price of the stanchions.

Skowhegan, Me., April, 1913.

CYRUS NEWTON.

KEEPS COWS CLEAN

The James Equipment is better than any I have seen. It saves time, work, keeps the cows clean and therefore we have sanitary milk.

Alma, Kas., April 17, 1913.

A. E. STUEWE.

SAVES MORE THAN ANTICIPATED

In my opinion, James Equipment takes the lead over all others in every way. My equipment is giving me entire satisfaction. It saves money. I can feed one cow and her neighbor can't get a bit of it. The cows can't step on one another's udders. I had no idea of the saving it would mean until I installed it.

West Salem, Wis., April, 1913.

FRED BEHNUB.

"STRONG ENOUGH FOR ANY COW"

I am using your 22A Stanchion and find them strong enough to hold any cow and at the same time the most comfortable for the cows. They can move almost as freely when in the stanchion as when in the pasture. My cows can lick their sides when in the stanchion apparently as easy as when out in the yard. I examined a great many stanchions of different makes before buying. I selected the James 22A and find that it is just what I was trying to get. I find my equipment saves money. Each cow gets just what I feed her. There is no waste of feed and I get more milk which is better because cleaner.

Afton, Minn., April 3, 1913.

J. M. OLDHAM.

SAVES MONEY

They save money by convenience of handling. It doesn't take any time to either lock or open them. A child could easily do the work.

Wolf Creek, Wis., March 31, 1913.

G. N. GULLICKSON.

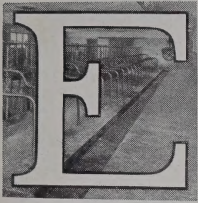
JAMES STALLS *and* STANCHIONS

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Sinnissippi Farm, Oregon, Ill
Col. F.O. Lowden, Owner

The James Stalls and Stanchions



VERY sanitary feature, every labor, feed and money saving device, everything that has proven best in cow stall construction is shown on the following pages describing the James Stalls and Stanchions.

These stalls are the achievement of a lifetime's experience in dairy farming and the result of many years of costly experimenting. The worth of every feature has been proven by the most severe tests in actual use in thousands of dairy barns.

Each year a larger proportion of buyers demand the steel equipment and every year more of them decide upon the complete steel stall with self-cleaning manger as the one best suited to their needs.

That, too, is the stall which we recommend almost invariably, because we know from our own practical experience, and from the experience of farmers all over the country, that the steel stall with the complete self-cleaning manger is the one that effects the greatest saving of time, labor, feed and money.

It is this stall—the No. 14A—which is the best purchase in the long run, for the average dairyman.

The No. 14B and No. 14C are identical with No. 14A excepting that the No. 14B is without any manger and the No. 14C is furnished with manger divisions.

Although the wood stall is equipped with many of the features of the steel stall, we strongly recommend the purchase of the steel equipment.

The steel stalls have the advantage of being fire-proof; they are more sanitary having less surface to catch the dust; and being smooth are more easily cleaned. Then, too, they interfere much less with light and the free circulation of the air. They are more easily erected, and being more durable and practically free from the need of repairs, really cost no more in the long run than the wood stalls.

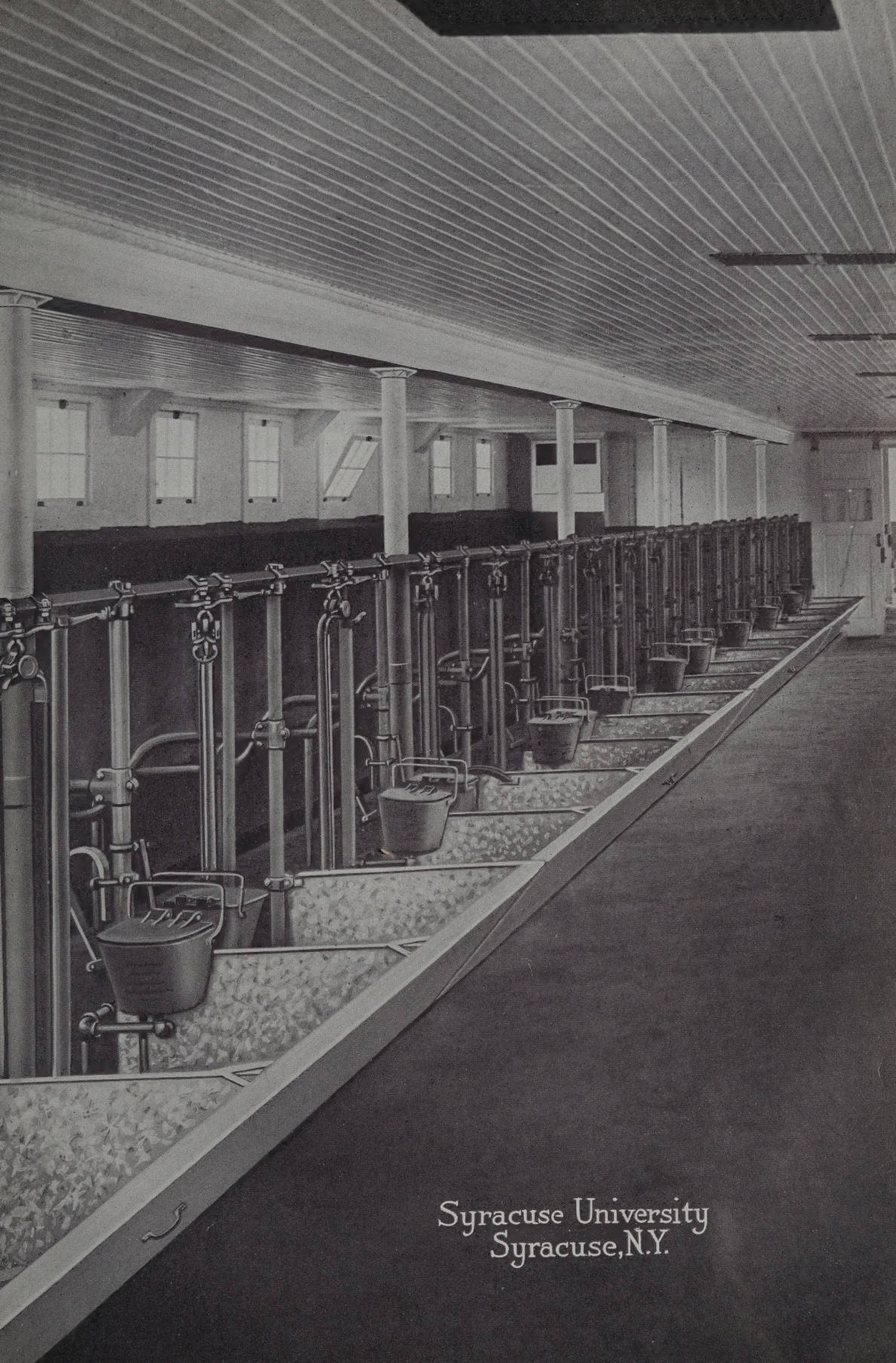
The various features and parts of the stalls and stanchions have been described on preceding pages; but we wish to call attention to the construction of the stalls.

All James Steel Stalls are built of steel piping, which is rolled especially for our use. It is $1\frac{5}{8}$ " outside diameter, which we guarantee to be strong enough to stand any strain to which it may be subjected.

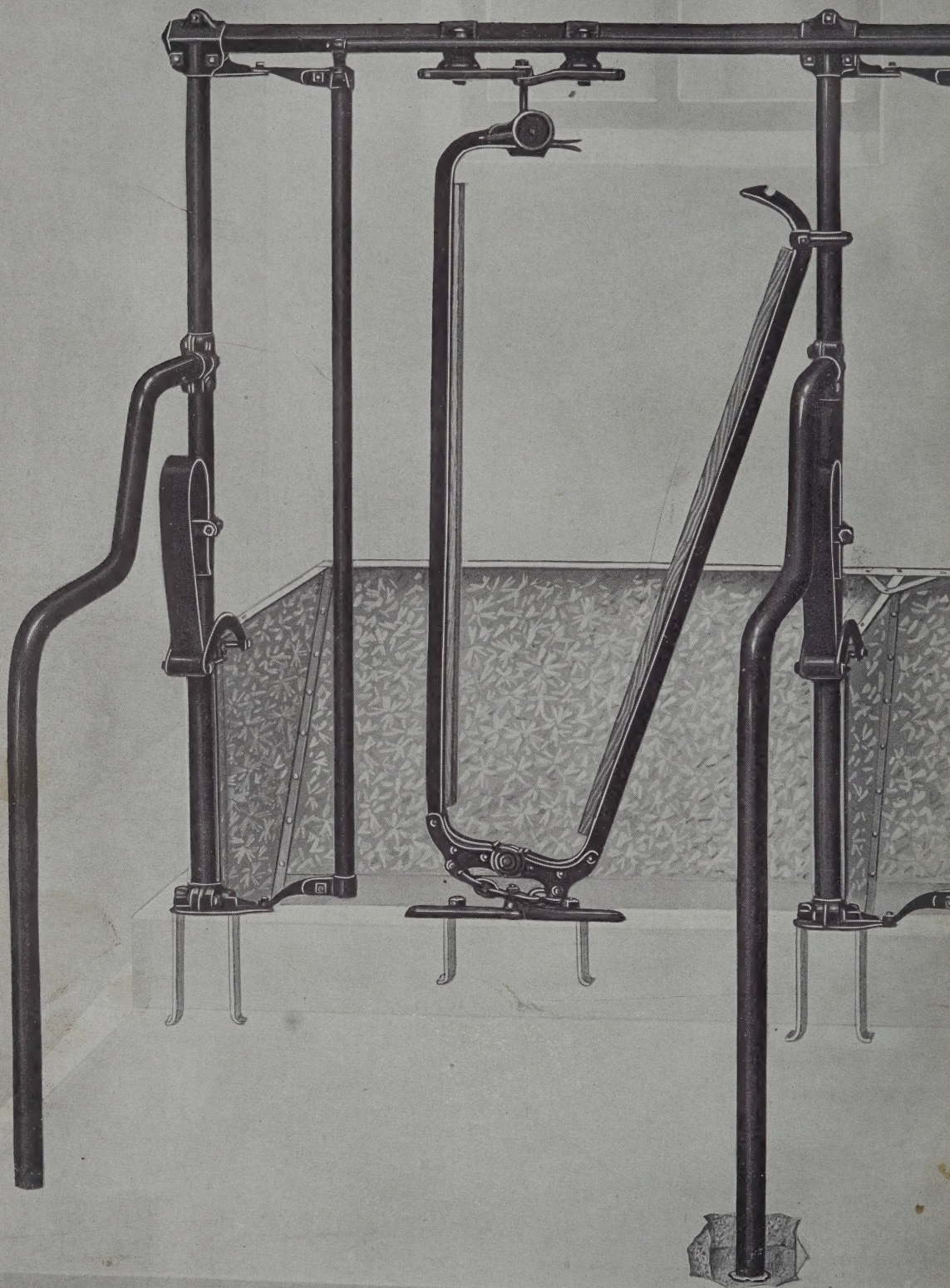
The various parts of the stall are held together by malleable sanitary fittings, which are readily drawn together by bolts and takes the exact shape of the piping. They have a vise-like grip on the parts and when the bolts are properly tightened will never slip.



Brown & McMillan Barn
Waukesha, Wis.



Syracuse University
Syracuse, N.Y.



James Stall No. 14A

(PATENTED)

SPECIFICATIONS

FRAME: Upright stall posts are of steel piping, $1\frac{5}{8}$ -in. outside diameter; horizontal is of same material, $1\frac{1}{2}$ in. x $1\frac{1}{2}$ in. square pipe. Patent applied for.

PARTITIONS: James Triple Curve Stall Partitions, as described on page 48. Made of steel piping $1\frac{5}{8}$ in. O. D., with malleable anchor flange for concrete floor.

WIDTH OF STALL: Stock sizes 3 ft. 2 in., 3 ft. 4 in., 3 ft. 6 in. 3 ft. 6 in. furnished if not otherwise specified.

FITTINGS: Best malleable, will withstand all strains. Dust-proof type. (See pages 45-6.)

ANCHOR: Heavy galvanized steel, 2 in. wide, for stall posts and stanchions. Templates attached, to make accurate setting of anchors easy. Anchors are the only part of stall required at time concrete is laid; stall easily attached to anchors at any time later. Patent applied for. (See pages 45-6.)

MANGER: James Individual Self-Cleaning Manger. Patented. Constructed of heavy gauge best galvanized sheet steel; manger front and partitions strongly reinforced by folded and compressed edges. U-shaped guards on partitions overlap the stall posts and V-shaped brace joins manger front and partition, insuring rigidity and preventing racking. Bottom of partitions rounded. (See page 37.)

MANGER LIFTING SPRINGS: Special design of cold drawn flat spring; oil tempered and tested for severe use; same quality as the best automobile springs. Tension easily adjusted. Furnished four springs to five stalls. (See page 35.)

SURE STOP SWINGING POST: $1\frac{5}{16}$ -in. O. D. steel piping. Top closed with dust-proof ornament. Dust-proof hinge fittings of best malleable. Rod connecting Sure Stops is $\frac{1}{2}$ -in. steel piping, ends closed with dust-proof ornaments. (See page 29).

STANCHION: James No. 14J (page 81). Patented. Door Knob type of cow-proof lock; James Alignment Device; Lock Open Clip; Hinge Everlasting; Double Chain Hanger with three flat and four round steel links; James Anchor; side bars of carbon steel tees $1\frac{1}{4}$ x $1\frac{1}{4}$ x $\frac{3}{16}$ in., lined with thoroughly-seasoned birch, securely attached. For Holsteins, Shorthorns and Brown Swiss, or other large cows, we recommend the use of Stanchion No. 14L (page 83) in this stall. The additional cost is only 20c.

FINISH: The steel is first mechanically cleaned, removing scale, grease and foreign matter; dipped one coat of best quality primer and baked; followed by a coat of best quality enamel and baked. Inside of all piping, as well as outside, protected by the two coats baked on. (See page 55.)

WEIGHT: About 115 pounds per stall.

PRICE: Per Stall \$10.00, F. O. B. Ft. Atkinson, Wis. If Stanchion No. 14L is substituted, price is \$10.20.

ADDITIONAL ENDS: To finish row of stalls an additional end section composed of a stall upright, a manger partition and a stall partition are required. We furnish all this material for \$3.00.

MANGER PATTERN: Furnished free with each order or on request. Of hardwood, exact shape of manger partition bottom, making it easy to shape the trough in the concrete to accurately fit the manger.

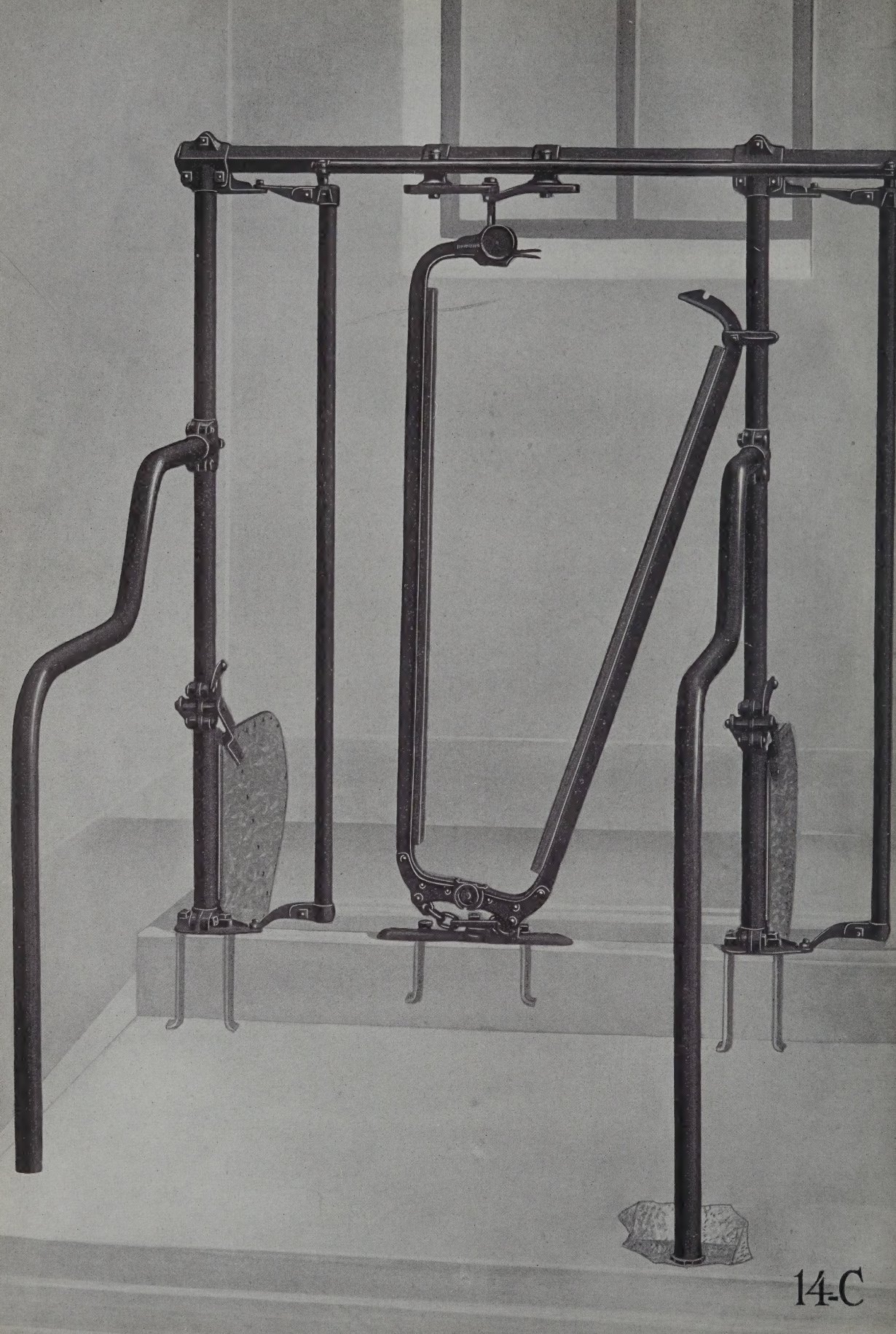
Shipped assembled, knocked down for convenience in handling and ease of erection. (Page 49.)



Jewish Protectory and Aid Society Barn
Hawthorne, N.Y.



Barn of W.H. Colvin
Chicago



James Stall No. 14C

(PATENTED)

SPECIFICATIONS

FRAME: Upright stall posts are of steel piping, $1\frac{5}{8}$ -in. outside diameter; horizontal is of same material, $1\frac{1}{2}$ in. x $1\frac{1}{2}$ in. square pipe. Patent applied for.

PARTITIONS: James Triple Curve Stall Partitions, as described on page 48. Made of steel piping $1\frac{5}{8}$ in. O. D., with malleable anchor flange for concrete floor.

WIDTH OF STALL: 3 ft. 2 in., 3 ft. 4 in., and 3 ft. 6 in. are stock sizes. 3 ft. 6 in. width will be furnished if not otherwise specified.

FITTINGS: Best malleable, size and strength sufficient to withstand all strains. Dust-proof type. (See pages 45-6.)

ANCHORS: Heavy galvanized steel, 2 in. wide, for stall posts and stanchions. Templates attached, to make accurate setting of anchors easy. Anchors are the only part of stall required at time concrete is laid; stall easily attached to anchors at any time later. Patent applied for. (See pages 49-50.)

MANGER DIVISIONS: Heavy gauge galvanized sheet steel, reinforced by $\frac{1}{4}$ in. x 1 in. iron. A strong, heavy malleable hinge that will not slip, holds division firmly in position. The U-guard fitting around steel post holds division rigid. Strong spring holds division in place when raised. Regularly furnished 19 in. high. (See page 39.)

SURE STOP SWINGING POST: $1\frac{5}{16}$ -in. O. D. steel piping. Opening at top closed with dust-proof ornament. Dust-proof hinge fittings of best malleable. Rod connecting row of Sure Stops is $\frac{1}{2}$ -in. steel piping, openings at ends closed with dust-proof ornaments. (See page 29.)

STANCHION: James Stanchion No. 14J, described on page 81. Patented. Door knob type of cow proof lock; James Alignment Device; Lock Open Clip; James Hinge Everlasting; James Double Chain Hanger with three flat and four round steel links; James Anchor; side bars of carbon steel tees $1\frac{1}{4}$ in. x $1\frac{1}{4}$ in. x $\frac{3}{16}$ in., lined with thoroughly seasoned birch, securely attached. For Holsteins, Shorthorns and Brown Swiss, or other large cows, we recommend the use of Stanchion No. 14L (page 83) in this stall. The additional cost is only 20c.

FINISH: The steel is first mechanically cleaned, removing scale, grease and foreign matter, thoroughly preparing the material for painting; then dipped one coat best quality primer and baked; followed by a coat of best quality enamel and baked. (See page 55.) The inside of all piping, as well as the outside is protected by the two coats baked on.

WEIGHT: About 101 pounds per stall.

PRICE: Per stall \$8.25, F. O. B. Ft. Atkinson, Wis. If Stanchion No. 14L is substituted, price is \$8.45.

ADDITIONAL ENDS: To finish a row of stalls an additional end section, composed of a stall upright post, a manger division and a stall partition are required. We furnish all this material for \$3.75.

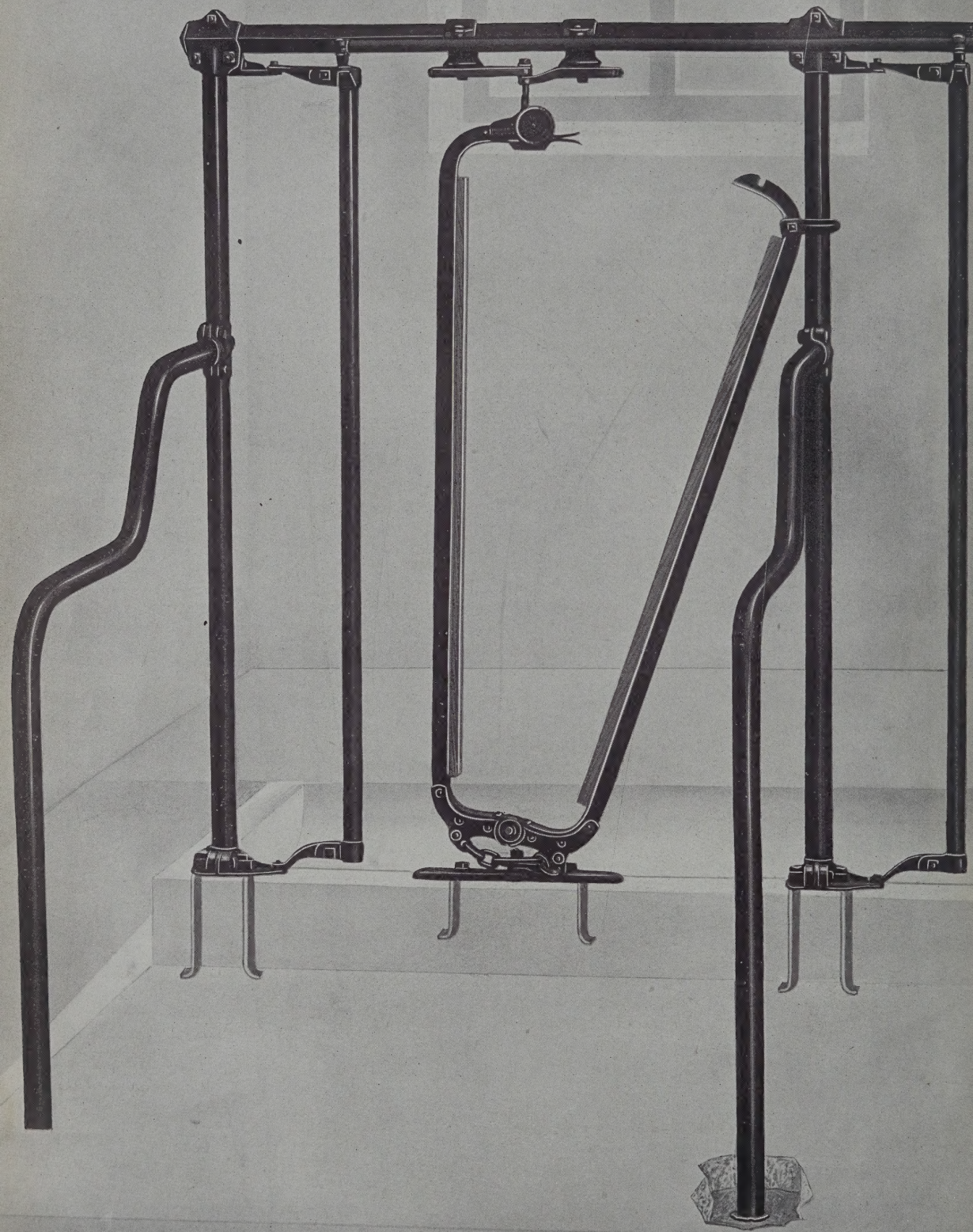
MANGER PATTERN: Furnished free with each order or on request. Of hardwood, exact shape of manger division bottom, making it easy to shape the trough in the concrete to accurately fit the manger.

Shipped assembled, knocked down for convenience in handling and ease of erection. (Page 49.)





Pen Dep't
Waukesha County Asylum Barn
Waukesha, Wis.



James Stall No. 14B

(PATENTED)

SPECIFICATIONS

FRAME: Upright stall posts are of steel piping, $1\frac{5}{8}$ -in. outside diameter; horizontal is of same material, $1\frac{1}{2}$ in. x $1\frac{1}{2}$ in. square pipe. Patent applied for.

PARTITIONS: James Triple Curve Stall Partitions, as described on page 48. Made of steel piping $1\frac{5}{8}$ in. O. D., with malleable anchor flange for concrete floor.

WIDTH OF STALL: 3 ft. 2 in., 3 ft. 4 in., and 3 ft. 6 in. are stock sizes. 3 ft. 6 in. width will be furnished if not otherwise specified.

FITTINGS: Best malleable, size and strength sufficient to withstand all strains. Dust-proof type. (See pages 45-6.)

ANCHORS: Heavy galvanized steel, 2 in. wide, for stall posts and stanchions. Templates attached, to make accurate setting of anchors easy. Anchors are the only part of stall required at time concrete is laid; stall easily attached to anchors at any time later. Patent applied for. (See pages 49-50.)

SURE STOP SWINGING POST: $1\frac{5}{16}$ -in. O. D. steel piping. Opening at top closed with dust-proof ornament. Dust-proof hinge fittings of best malleable. Rod connecting row of Sure Stops is $\frac{1}{2}$ -in. steel piping, openings at ends closed with dust-proof ornaments. (See page 29.)

STANCHION: James Stanchion No. 14J, described on page 81. Patented. Door knob type of cow proof lock; James Alignment Device; Lock Open Clip; James Hinge Everlasting; James Double Chain Hanger with three flat and four round steel links; James Anchor; side bars of carbon steel tees $1\frac{1}{4}$ in. x $1\frac{1}{4}$ in. x $\frac{3}{16}$ in., lined with thoroughly seasoned birch, securely attached. For Holsteins, Shorthorns and Brown Swiss, or other large cows, we recommend the use of Stanchion No. 14L (page 83) in this stall. The additional cost is only 20c.

FINISH: The steel is first mechanically cleaned, removing scale, grease and foreign matter, thoroughly preparing the material for painting; then dipped one coat of best quality primer and baked; followed by a coat of best quality enamel and baked. (See page 55.) The inside of all piping, as well as the outside is protected by the two coats baked on.

WEIGHT. About 85 pounds per stall.

PRICE: Per stall \$6.50, F. O. B. Ft. Atkinson, Wis. If Stanchion No. 14L is substituted, price is \$6.70.

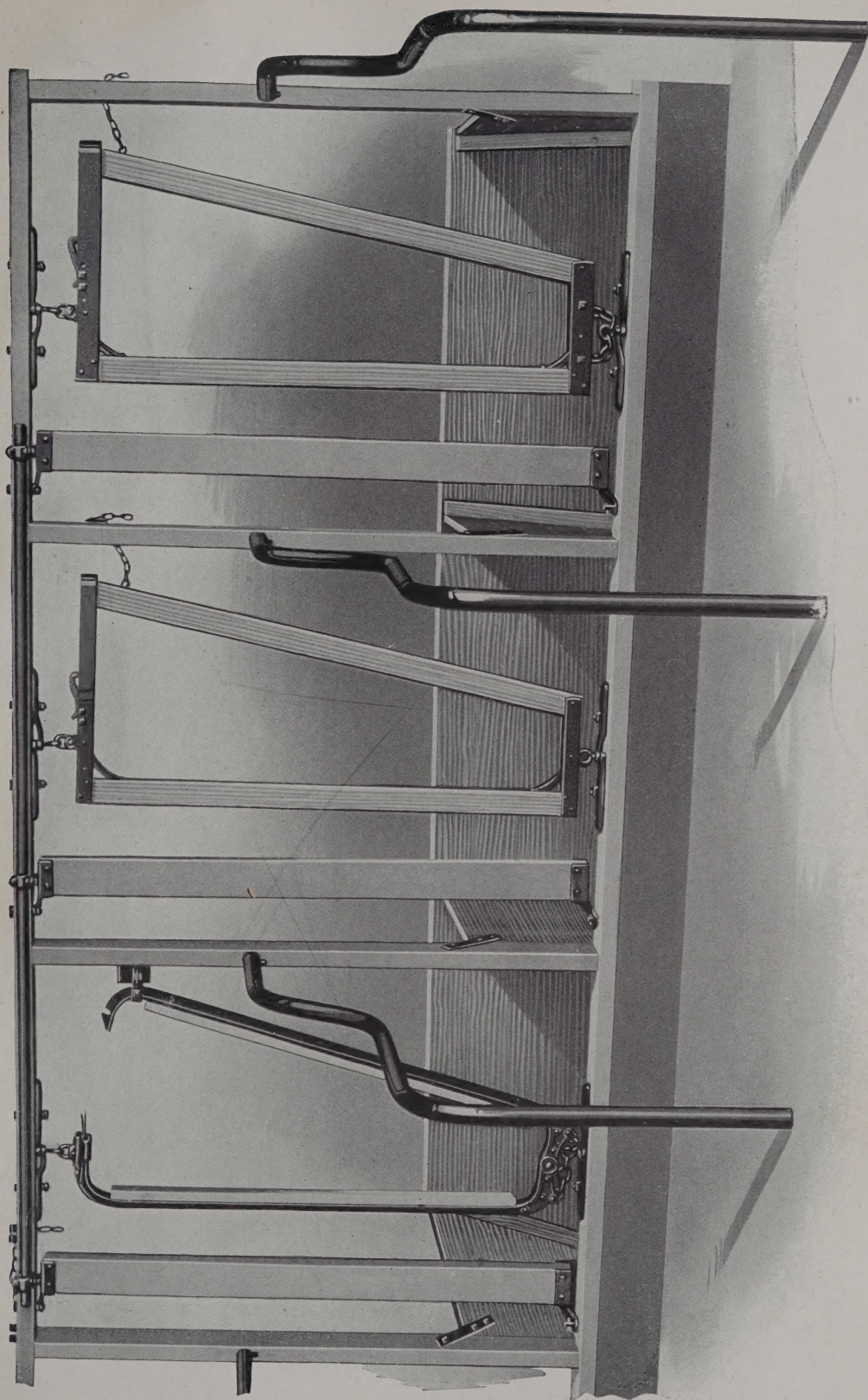
ADDITIONAL ENDS: To finish a row of stalls an additional end section composed of a stall upright post, and a stall partition are required. We furnish all this material for \$2.00.

MANGER PATTERN: Will be furnished free or on request, of hard wood, exact shape of manger partition bottom, so that manger trough in the concrete may be so shaped that the James Self Cleaning Mangers will fit accurately if you later wish to add the mangers to the stall.

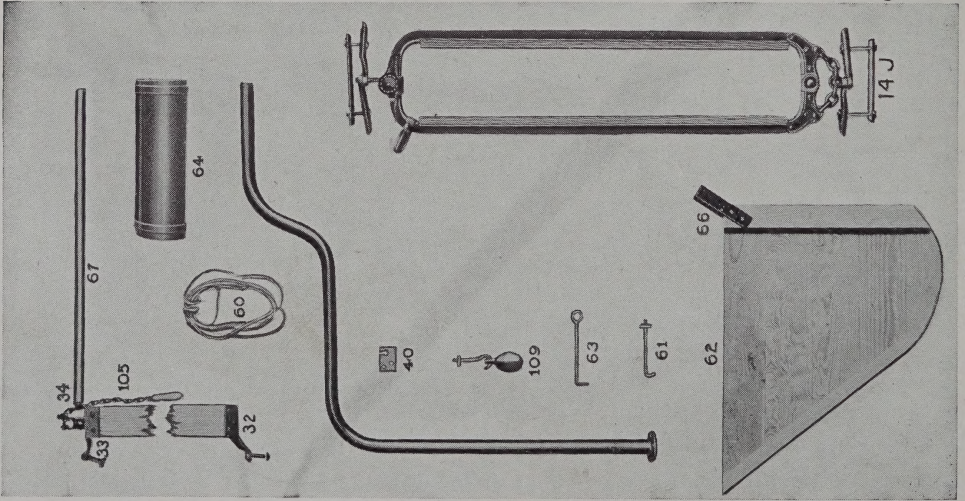
Shipped assembled, knocked down for convenience in handling and ease of erection. (Page 49.)



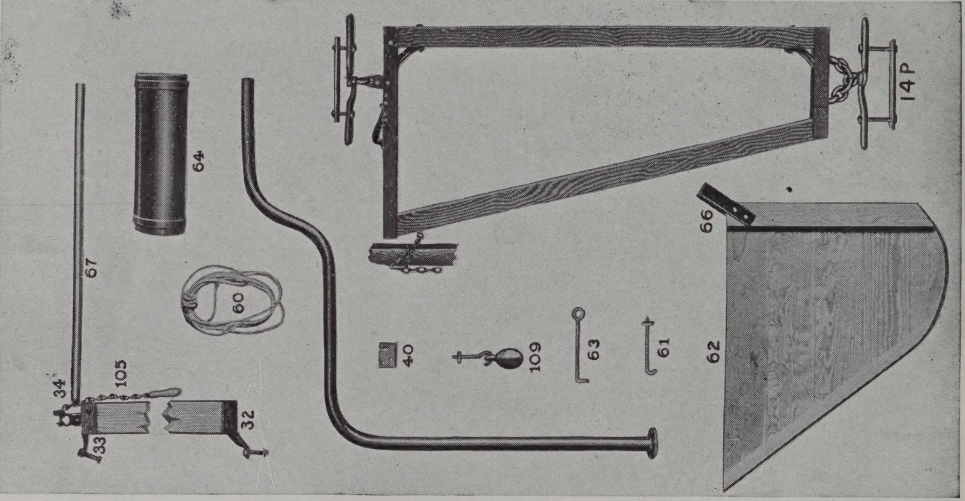
James Wood Stalls



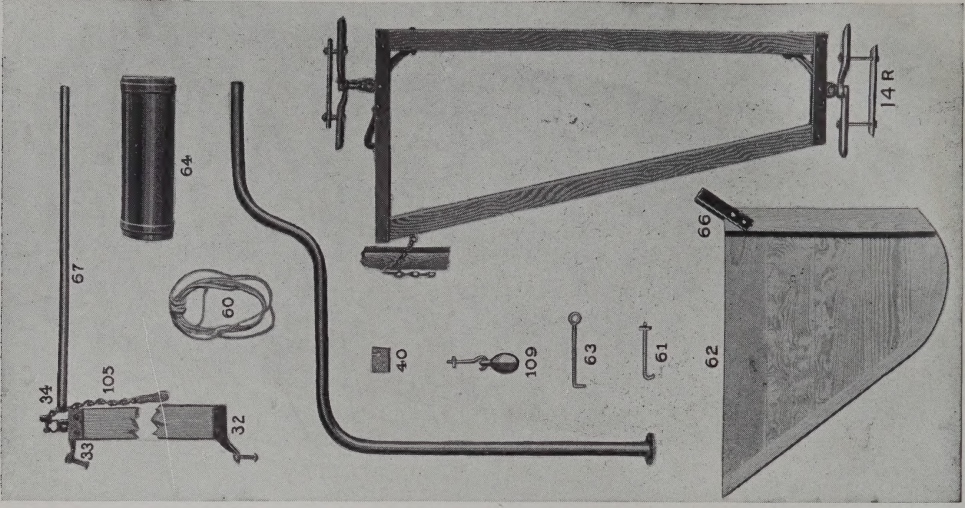
James Wood Stalls Nos. 25L, 25R and 25P



Stall No. 25J



Stall No. 25P



Stall No. 25R

James Wood Stalls

(PATENTED)

SPECIFICATIONS

FRAME: To be furnished by customer. Common 2 x 4s.

PARTITIONS: James Triple Curve Stall Partitions, as described on page 47. Made of steel piping $1\frac{5}{8}$ -in. O. D. with malleable flange for concrete floor. Hook bolt for attaching to wood frame.

FITTINGS: Best malleable, size and strength sufficient to withstand all strains.

MANGER: Manger partition (No. 62, opposite page). Carefully constructed of the best yellow pine dressed and matched lumber. All joints drawn tightly together. The vertical and slanted cleats are hardwood, and the latter is so shaped that when the front is nailed on, it serves as a brace and adds materially to the rigidity of the manger.

Unless otherwise specified, the manger partitions are furnished with rounded bottoms, but if the feed alley has already been cemented, we will furnish them with flat bottoms without extra charge.

The manger front to be furnished by the customer. Made of plain matched fencing which may be secured at any lumber yard at as low prices as we can make them here, saving you the freight.

MANGER LIFTING WEIGHTS: To offset weight of manger making it easy to raise. Pulley (No. 109), cord (No. 60) and form (No. 64) for making weight of concrete are furnished with the stall.

SURE STOP SWINGING POST: Sure Stop Post to be furnished by the customer. Ordinary 2 x 4. We furnish with the stall, fittings for top and bottom of Sure Stop post and the rod for connecting the Sure Stops. (Figs. 32, 33, 34, 105 and 67.)

FINISH: The steel is first mechanically cleaned, removing scale, grease and foreign matter, thoroughly preparing the material for painting; then dipped one coat best quality primer and baked; followed by a coat of best quality enamel and baked. (See page 55.) The inside of all piping, as well as the outside is protected by the two coats baked on.

WEIGHT: About 75 pounds per stall.

MANGER PATTERN: Furnished free with each order or on request. Of hardwood, exact shape of manger partition bottom, making it easy to shape the trough in the concrete to accurately fit the manger.

ADDITIONAL ENDS: To finish a row of stalls an additional end section composed of a stall partition and a manger partition are required. We furnish this material for \$2.00.

PRICE: Stall No. 25J, as above, with stanchion No. 14J, \$4.65 per stall.

Stall No. 25L, as above, with stanchion No. 14L, \$4.85 per stall.

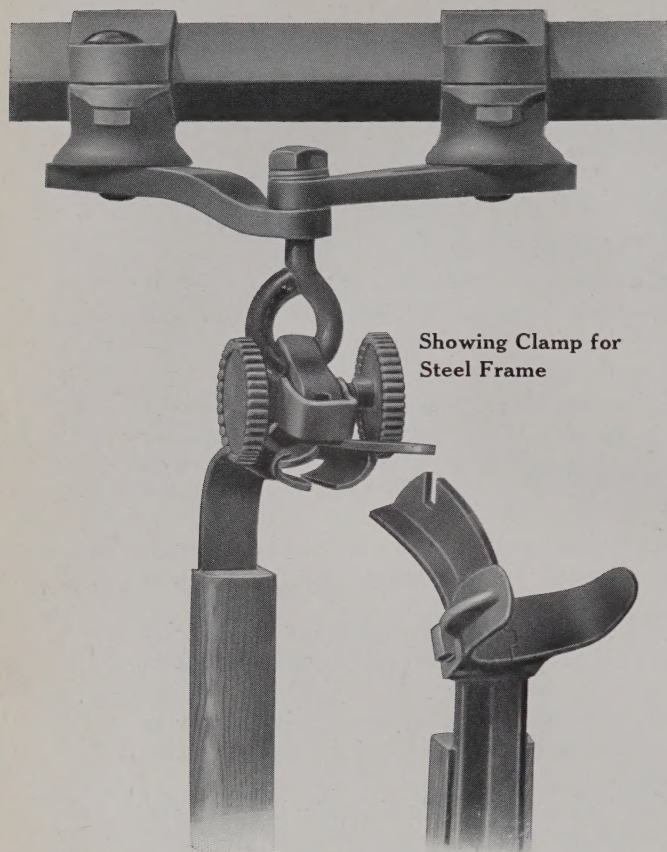
Stall No. 25P, as above, with stanchion No. 14P, \$4.55 per stall.

Stall No. 25R, as above, with stanchion No. 14R, \$4.25 per stall.

F. O. B. Ft. Atkinson, Wis.

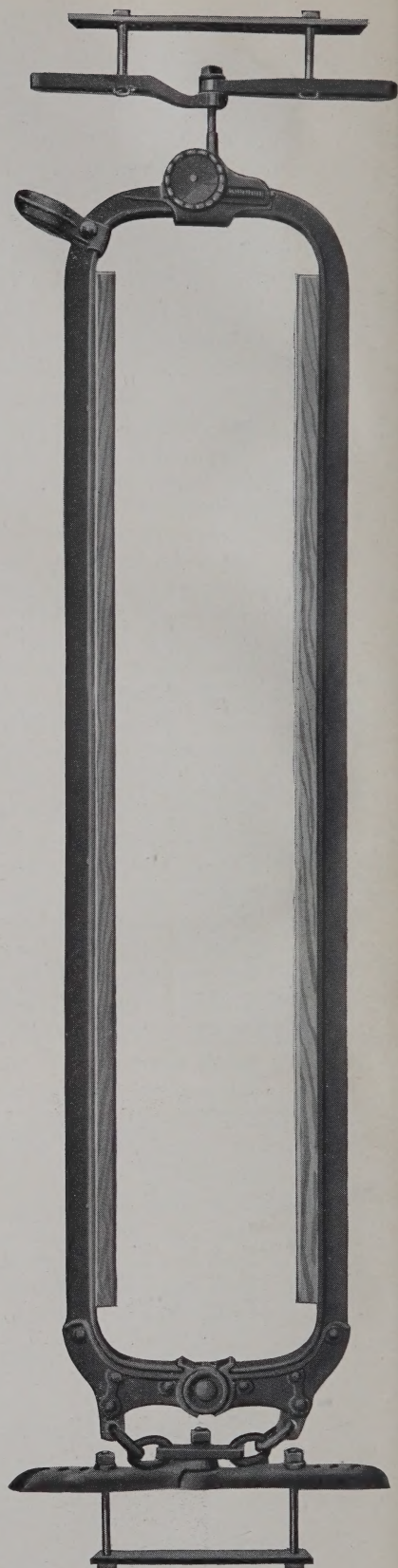
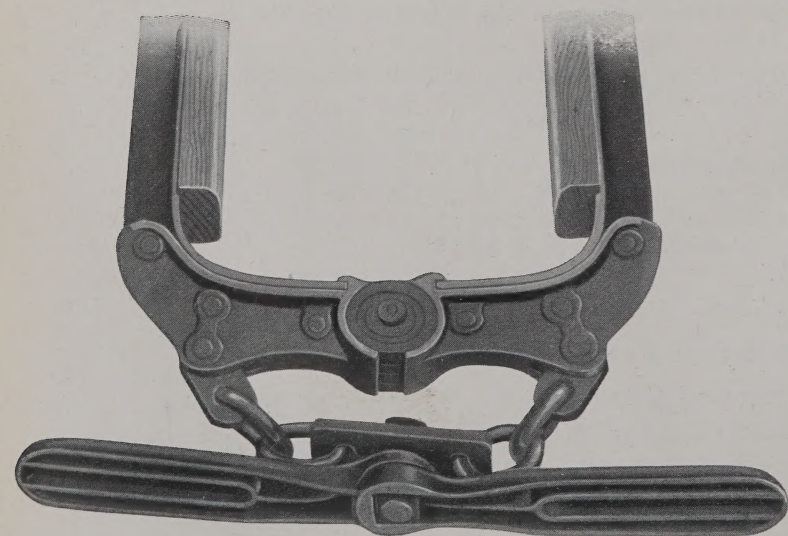
Complete directions for erecting the stalls
sent with every order.

For Holsteins, Shorthorns and Brown Swiss, or other large cows,
we recommend Stall No. 25-L.



Showing Clamp for
Steel Frame

No. 14J



James Stanchion No. 14J

(PATENTED)

SPECIFICATIONS

ALIGNMENT DEVICE: Best malleable iron. Adjustment $10\frac{1}{2}$ in. (See page 21.)

DOUBLE CHAIN HANGER: Seven links, three flat steel and four round, attached to stanchion with $\frac{5}{16}$ -in. rivets, to alignment irons with $\frac{1}{2}$ -in. machine bolt. (See page 43.)

WASHER PLATES: Two plates furnished, one for top and one for bottom, with four carriage bolts $\frac{7}{16}$ in. x 3 in., with lock washers.

HINGE EVERLASTING: Two-piece, interlocking hinge of best malleable; diameter $2\frac{1}{8}$ in., giving a wide bearing surface; attached with six $\frac{1}{4}$ -in. rivets; rivet in center of hinge is $\frac{7}{16}$ in. (See page 45.)

SIDE BARS: Carbon steel tees $1\frac{1}{4}$ in. x $1\frac{1}{4}$ in. x $\frac{3}{16}$ in. All bends and holes made by special machinery, insuring uniformity and perfect working fit of hinge and lock.

WOOD LINING: Thoroughly seasoned birch, carefully milled, shaped, polished and oiled. Carefully fitted to tees and securely attached. (See page 32.)

LOCK OPEN CLIP: Of malleable iron attached with $\frac{5}{16}$ -in. carriage bolt. (See page 29.)

COW PROOF LOCK: Of malleable and steel. Door knob type; can not be opened by the cow—but can be opened easily as a door even when the cow is pulling back. Best quality coiled spring $\frac{1}{2}$ -in. diameter. Will not break or lose its tension. Locks automatically when stanchion is closed. (See page 45.)

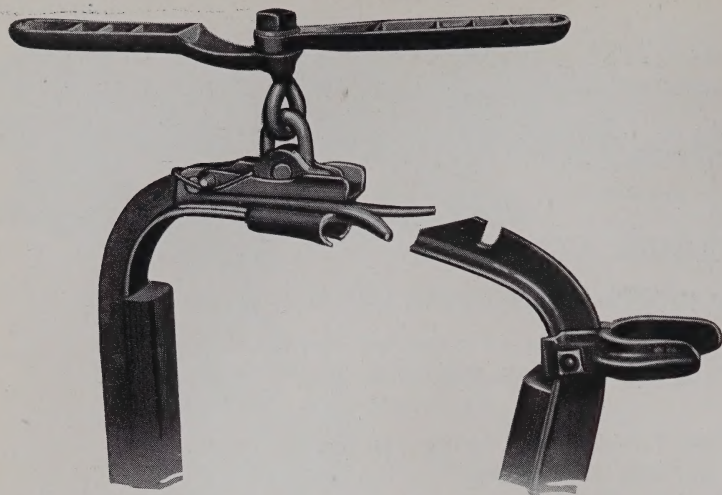
NECK SPACE: 7-in. regularly furnished. Neck space may be made 6-in. to $7\frac{1}{2}$ -in. by the use of thicker or thinner linings.

RIVETING: Huge presses, fifty tons pressure, form the rivet heads to shape, without crystallizing the metal—rivet heads will never break off.

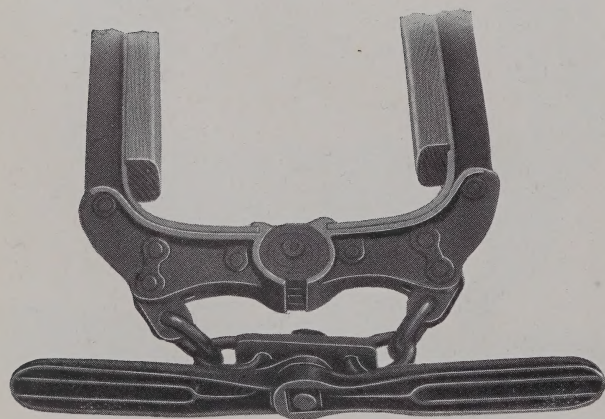
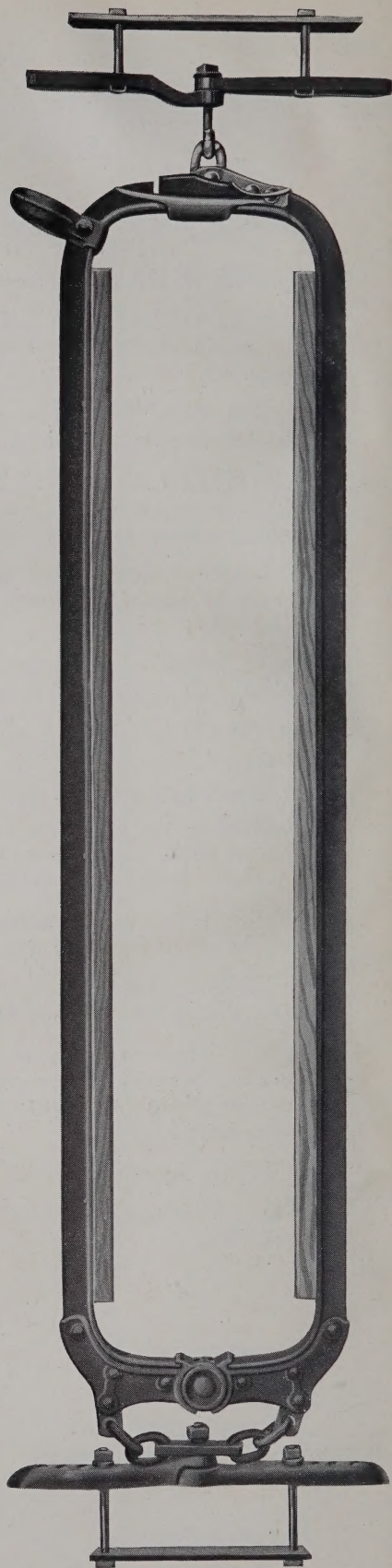
FINISH: The steel is first mechanically cleaned, removing scale, grease and foreign matter, thoroughly preparing the material for painting; then dipped one coat best quality primer and baked; followed by a coat of best quality enamel and baked. (See page 55.)

WEIGHT: Approximately 27 pounds.

PRICE: \$1.90 each, as shown for wood frame without anchor, F. O. B. Ft. Atkinson, Wis.



No. 14L



James Stanchion No. 14L

(PATENTED)

SPECIFICATIONS

ALIGNMENT DEVICE: Best malleable iron. Adjustment $10\frac{1}{2}$ in. (See page 21.)

DOUBLE CHAIN HANGER: Eight links, $\frac{3}{8}$ in. thick, attached to stanchion with $\frac{5}{16}$ -in. rivets.

WASHER PLATES: Two plates furnished, one for top and one for the bottom, with four carriage bolts $\frac{7}{16}$ in. x 3 in. with lock washers.

HINGE EVERLASTING: Two-piece, interlocking hinge of best malleable; diameter $2\frac{1}{8}$ in., giving a wide bearing surface; attached with six $\frac{1}{4}$ -in. rivets; rivet in center of hinge is $\frac{7}{16}$ in. (See page 45.)

SIDE BARS: Carbon steel tees, $1\frac{1}{2}$ in. x $1\frac{1}{2}$ in. x $\frac{3}{16}$ in. All bends and holes made by special machinery, insuring uniformity and perfect working fit of hinge and lock.

LOCK OPEN CLIP: Of malleable iron attached with $\frac{5}{16}$ -in. carriage bolt. (See page 29.)

COW PROOF LOCK: Malleable iron; can not be opened by cow—easily opened even with gloved or mittened hand. Spring of best piano wire—will not break or lose its tension. Locks automatically when stanchion is closed.

NECK SPACE: $8\frac{1}{2}$ -in. regularly furnished. Neck space may be made 8-in. to 9-in. by the use of thicker or thinner linings. This stanchion is designed for extra large cows. We make a special stanchion for bulls.

RIVETING: Huge presses, fifty tons pressure, form the rivet heads to shape, without crystallizing the metal—rivet heads will never break off.

FINISH: The steel is first mechanically cleaned, removing scale, grease and foreign matter, thoroughly preparing the material for painting; then dipped one coat best quality primer and baked; followed by a coat of best quality enamel and baked. (See page 55.)

WEIGHT: Approximately 26 pounds.

PRICE: \$2.10 each, as shown. For wood frame. F. O. B. Ft. Atkinson, Wis.

This stanchion is designed for extra large cows, and we recommend its use for Holsteins, Shorthorns and Brown Swiss. We make a special stanchion for bulls.

Fitted for attaching to steel frame (two clamps at top for horizontal pipe) 30c extra.

James Stanchion No. 14K

(PATENTED)

SPECIFICATIONS

DOUBLE CHAIN HANGER: Eight links, $\frac{3}{8}$ -in. thick, attached to stanchion with $\frac{5}{16}$ -in. rivets.

WASHER PLATES: Two plates furnished, one for top and one for the bottom, with four carriage bolts $\frac{7}{16}$ in. x 3 in.

HINGE EVERLASTING: Two-piece, interlocking hinge of best malleable; diameter $2\frac{1}{8}$ in., giving a wide bearing surface; attached with six $\frac{1}{4}$ -in. rivets; rivet in center of hinge is $\frac{7}{16}$ in. (See page 45.)

SIDE BARS: Carbon steel tees, $1\frac{1}{4}$ in. x $1\frac{1}{4}$ in. x $\frac{3}{16}$ in. All bends and holes made by special machinery, insuring uniformity and perfect working fit of hinge and lock.

LOCK OPEN CLIP: Of malleable iron attached with $\frac{5}{16}$ -in. carriage bolt. (See page 29.)

COW PROOF LOCK: Malleable iron; can not be opened by cow—easily opened even with gloved or mittened hand. Spring of best piano wire—will not break or lose its tension. Locks automatically when stanchion is closed.

NECK SPACE: 7-in. regularly furnished. Neck space may be made 6-in. to $7\frac{1}{2}$ -in. by the use of thicker or thinner linings.

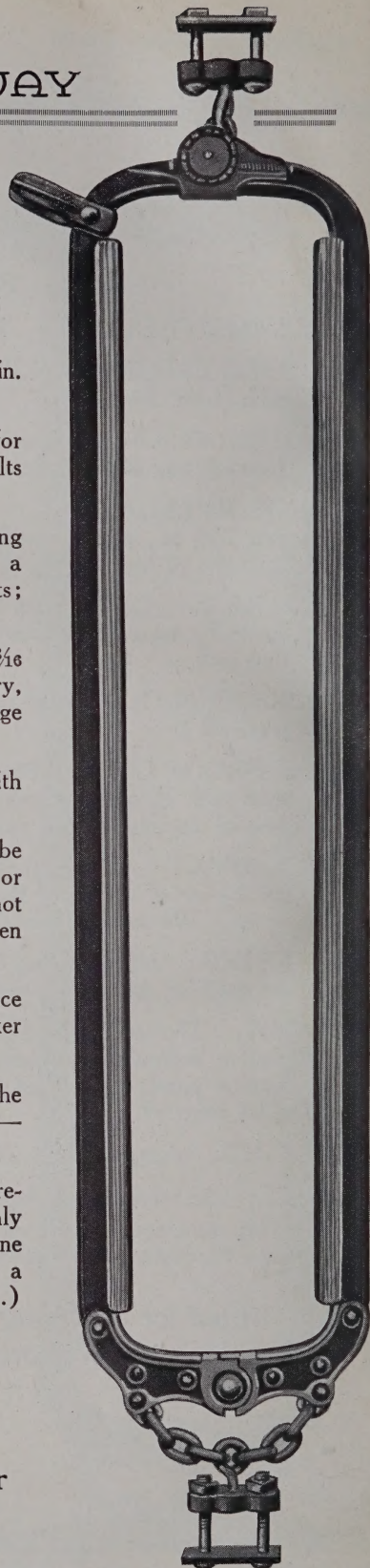
RIVETING: Huge presses, fifty tons pressure, form the rivet heads to shape, without crystallizing the metal—rivet heads will never break off.

FINISH: The steel is first mechanically cleaned, removing scale, grease and foreign matter, thoroughly preparing the material for painting; then dipped one coat best quality primer and baked; followed by a coat of best quality enamel and baked. (See page 55.)

WEIGHT: Approximately 20 pounds.

PRICE: \$1.60 each, as shown. For wood frame.
F. O. B. Ft. Atkinson, Wis.

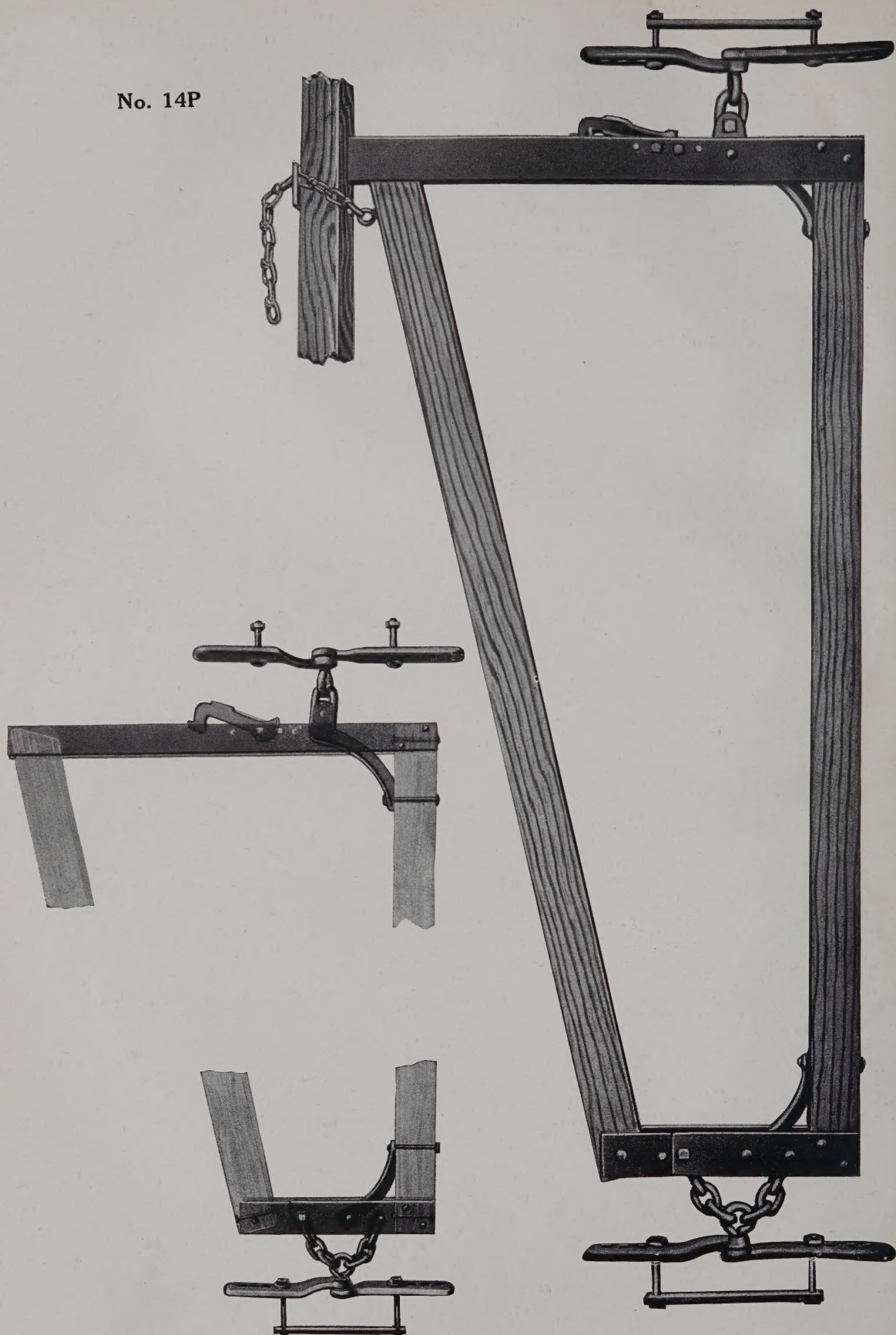
Fitted for steel frame (one clamp at top for horizontal pipe) 15c extra.





Sinnissippi Farm, Oregon, Ill.
Col. F. O. Lowden, Owner

No. 14P



James Stanchion No. 14P

(PATENTED)

SPECIFICATIONS

ALIGNMENT DEVICE: Best malleable iron. Adjustable 10½ in. (See page 21.)

DOUBLE CHAIN HANGER: 7 links—3 flat, 4 round—¾ in. thick, attached to stanchion with ⅝-in. rivets.

WASHER PLATES: Two plates furnished, one for top and one for the bottom, with four carriage bolts ⅞ in. x 3 in. with lock washers.

SIDE BARS: Of well seasoned hard maple, 2½ in. x 1½ in., carefully milled, shaped, polished and oiled. Ends riveted crosswise to prevent splitting. Fastened to top and bottom plates with rivets. Reinforced by heavy malleable braces, riveted to the stick and riveted to the steel plates; no racking in the corners, the strain being equally distributed.

TOP AND BOTTOM PLATES: Heavy carbon steel, 2 in. wide, and a trifle over ⅛ in. thick, carefully punched by special machinery, insuring perfect fit for all rivets. A steel plate at the top forms a guide for the loose arm of the stanchion and prevents it from dropping to the floor.

COW PROOF LOCK: Malleable iron. Simple—can not get out of order. Easily unlocked with gloved or mittened hand, but can not be opened by the cow. Locks automatically when stanchion is closed.

NECK SPACE: Adjustable, making space either 6½ in., 7½ in. or 8½ in. wide. Adjustment quickly and easily made, it being necessary to remove but two bolts at the top and one at the bottom, telescope the plates together and replace the bolts.

LOCK OPEN CHAIN: James Chain Lock Open Device and Clip as shown in illustration.

RIVETING: Machine riveted.

FINISH: The steel is first mechanically cleaned, removing scale, grease and foreign matter, thoroughly preparing the material for painting; then dipped one coat best quality primer and baked; followed by a coat of best quality enamel and baked. (See page 55.)

WEIGHT: Approximately 22 pounds.

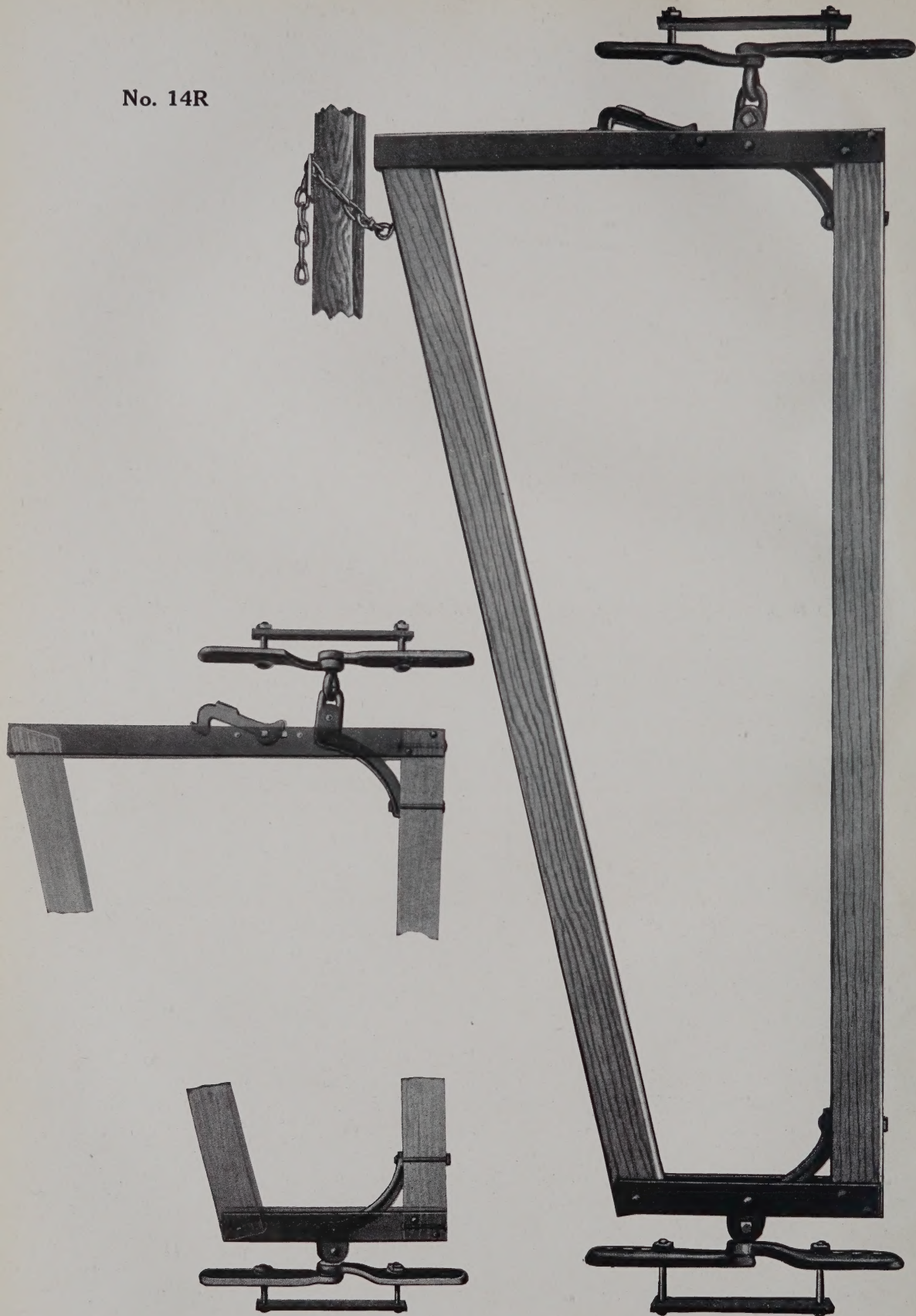
PRICE: \$1.80 each, as shown. For wood frame only. F. O. B. Ft. Atkinson, Wis.





Barn of Peter Reiss
Sheboygan Falls, Wis.

No. 14R



James Stanchion No. 14R

(PATENTED)

SPECIFICATIONS

ALIGNMENT DEVICE: Best malleable iron. Adjustable $10\frac{1}{2}$ in. (See page 21.)

WASHER PLATES: Two plates furnished, one for top and one for the bottom, with four carriage bolts $\frac{7}{16}$ in. x 3 in., with lock washers.

SIDE BARS: Of well seasoned hard maple, $2\frac{1}{2}$ in. x $1\frac{1}{2}$ in., carefully milled, shaped, polished and oiled. Ends riveted crosswise to prevent splitting. Fastened to-top and bottom plates with rivets. Reinforced by heavy malleable braces, riveted to the stick and riveted to the steel plates; no racking in the corners, the strain being equally distributed.

TOP AND BOTTOM PLATES: Heavy carbon steel, 2 in. wide and a trifle over $\frac{1}{8}$ in. thick, carefully punched by special machinery, insuring perfect fit for all rivets. A steel plate at the top forms a guide for the loose arm of the stanchion and prevents it from dropping to the floor.

LOCK OPEN CHAIN: James Chain Lock Open Device and Clip as shown in illustration.

COW PROOF LOCK: Malleable iron. Simple—can not get out of order. Easily unlocked with gloved or mittened hand, but can not be opened by the cow. Locks automatically when stanchion is closed.

NECK SPACE: 7 in.

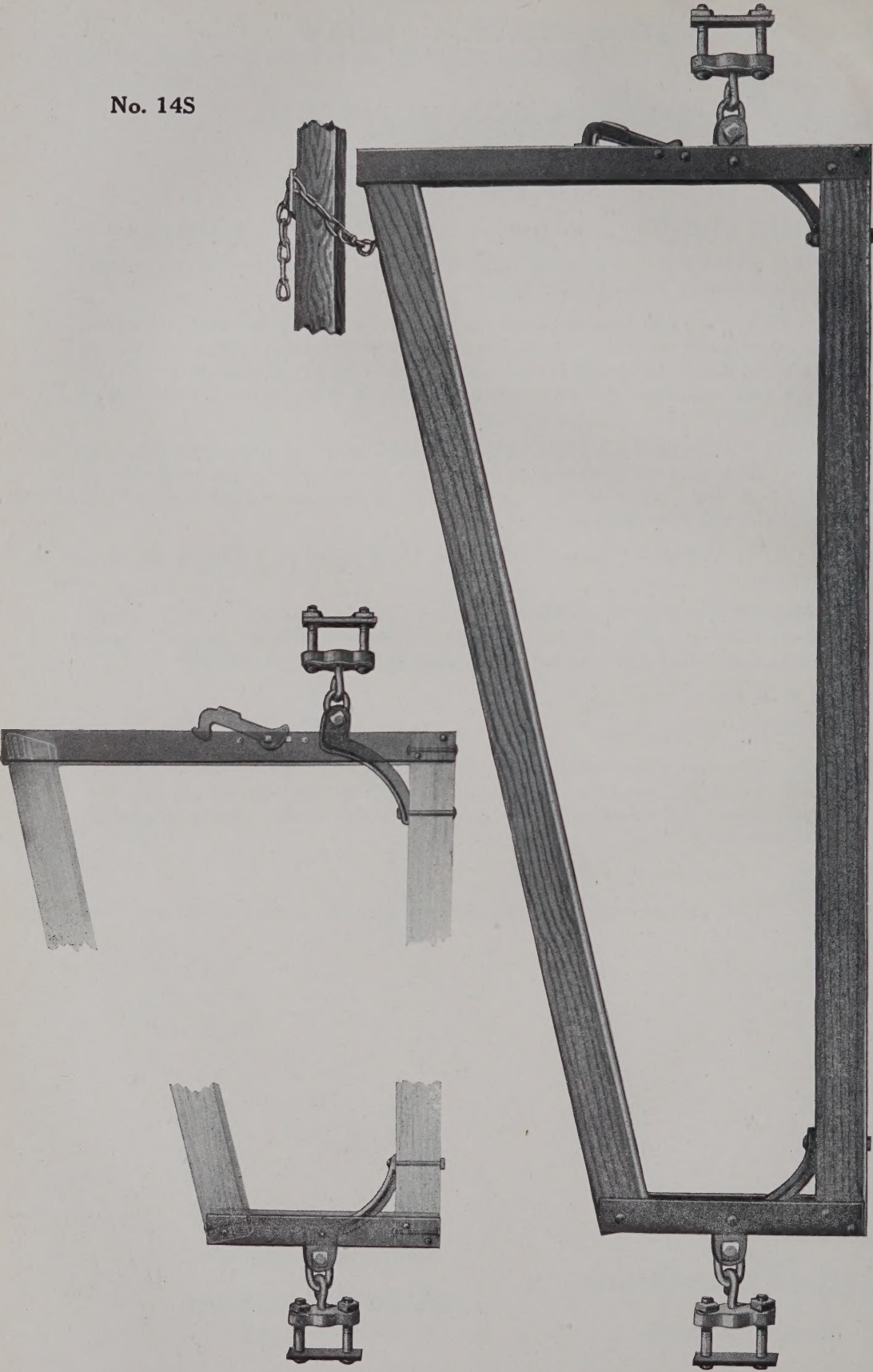
RIVETING: Machine riveted.

FINISH: The steel is first mechanically cleaned, removing scale, grease and foreign matter, thoroughly preparing the material for painting; then dipped one coat best quality primer and baked; followed by a coat of best quality enamel and baked. (See page 55.)

WEIGHT: Approximately 22 pounds.

PRICE: \$1.50 each, as shown. For wood frame only. F. O. B. Ft. Atkinson, Wis.

No. 14S



James Stanchion No. 14S

(PATENTED)

SPECIFICATIONS

WASHER PLATES: Two plates furnished, one for top and one for the bottom, with four carriage bolts $\frac{7}{16}$ in. x 3 in.

SIDE BARS: Of well seasoned hard maple, carefully milled, shaped, polished and oiled. Ends riveted crosswise to prevent splitting. Fastened to top and bottom plates with rivets. Reinforced by heavy malleable braces, riveted to the stick and riveted to the steel plates; no racking in the corners, the strain being equally distributed.

TOP AND BOTTOM PLATES: Heavy carbon steel, 2 in. wide and a trifle over $\frac{1}{8}$ in. thick, carefully punched by special machinery, insuring perfect fit for all rivets. A steel plate at the top forms a guide for the loose arm of the stanchion and prevents it from dropping to the floor.

LOCK OPEN CHAIN: James Chain Lock Open Device and Clip as shown in illustration.

COW PROOF LOCK: Malleable iron. Simple—can not get out of order. Easily unlocked with gloved or mittened hand, but can not be opened by the cow. Locks automatically when stanchion is closed.

NECK SPACE: 7 in.

RIVETING: Machine riveted.

FINISH: The steel is first mechanically cleaned, removing scale, grease and foreign matter, thoroughly preparing the material for painting; then dipped one coat best quality primer and baked; followed by a coat of best quality enamel and baked. (See page 55.)

WEIGHT: Approximately 15 pounds.

PRICE: \$1.20 each, as shown. For wood frame only. F. O. B. Ft. Atkinson, Wis.

EAST AURORA
 ERIE COUNTY, NEW YORK

November 20, 1913.

James Manufacturing Co.,
 Fort Atkinson, Wisconsin.

Dear Sirs:—It may interest you to know that our best barn is thoroughly equipped with the James apparatus.

We have accommodations in this barn for fifty-six head of cattle. Every stall is full, and after a year's use of your equipment we fail to find a single point to criticize or complain of.

If there is a better outfit than yours in the way of barn furniture, I have never seen it nor heard of it. I wish you all the success you deserve, which is the most generous wish I can express.

So here's a hand grasp, and I am ever

Your sincere,

ELBERT HUBBARD.

1409-12 PIONEER BUILDING

St. Paul, Minn., November 19, 1913.

James Manufacturing Co.,
 Fort Atkinson, Wisconsin.

Gentlemen:—Your expert has just completed the installation, in a workmanlike manner, of four hundred James Standard Steel Stalls and Stanchions, in the new barn belonging to Mr. Walter J. Hill, at Northcote, Minn.

We purchased the James Equipment after a complete study of the requirements for this work. This barn is to be used through the winter months, to house and fatten beef cattle for the market. The large number of animals kept under one roof makes it imperative that sanitary conditions of light, ventilation and feeding be provided. The economy of feed and the labor of feeding has also been taken into consideration. With these conditions in view, the James Equipment has been used, because it is rigid and sanitary. The slender members of the stalls and stanchions obstruct a minimum amount of light and air. They are easy to keep clean themselves and permit ready access to the stalls and mangers. The arrangement of the mangers permits of great economy in the labor of feeding and prevents any waste of feed.

Up to date we have found the James Equipment satisfactory in every particular.

Yours very truly,

TOLTZ ENGINEERING CO.

814 STEPHEN GIRARD BUILDING
 PHILADELPHIA

January 7, 1914.

James Manufacturing Co.,
 Fort Atkinson, Wisconsin.

Gentlemen:—I want to say in reference to the equipment that I consider it the very best. I have been through fifty first-class cow barns and I can see many advantages you have over the others both as to strength and neatness, and being more modern in every way.

Yours very truly,

VICTOR J. HUMBRECHT.

DELAVAN, WISCONSIN

November 20, 1913.

James Manufacturing Co.,
 Fort Atkinson, Wisconsin.

Gentlemen:—The satisfaction derived from the installation of my seventh cow barn with your stable fixtures prompts me to tell you that with each successive installation (covering a period of five years), I have investigated the market thoroughly and concluded each time to use your fixtures, and I feel that my farms now are supplied with the most modern stable equipment obtainable.

I am very well pleased with the cow stalls, generally termed the "ordinary stalls," as well as the special work for my Maternity Barn, Calf Barn and Bull Pens with their exercising yards. Believe that my farms are now arranged so that they will afford me the very best returns in all the branches of dairy farming.

In all my building and equipment operations I have confined myself within the limits of economy, and I think I have buildings and equipment such that any farmer would be proud of and can well afford to buy, and you are at liberty to refer any present or prospective buyer to my farm for demonstration.

Yours respectfully,

EDWARD TILDEN.

1106 BOYLSTON STREET
BOSTON

December 5, 1913.

James Manufacturing Co.,
Fort Atkinson, Wisconsin.

Gentlemen:—We are using part of the "James Sanitary Barn Equipment" in the last three barns constructed and find it very satisfactory.

Yours very truly,
WALKER-GORDON LABORATORY CO.,
G. W. Franklin, Secy.

JENKINS, KENTUCKY

November 25, 1913.

J. Lallinger,
Beaver Dam, Ky.

Dear Sir:—You no doubt will be interested to know that our barn is completed. The stalls are the best that can be had and give entire satisfaction. I was worried, afraid we could not get properly installed, but the instructions furnished was the most complete I ever saw. I was surprised how simple the stalls were to put up and each piece of pipe fitting so perfect we could make no mistake. When ready for next barn it will be James stalls—you bet.

Respectfully,
ELKHORN DAIRY, Jenkins, Ky.

MAR-DEL CANNING COMPANY
SUDLERSVILLE, MD.

December 26, 1913.

James Manufacturing Co.,
Fort Atkinson, Wisconsin.

Gentlemen:—It gives me great pleasure to tell you what we think of your complete stalls with mangers and watering buckets and your other labor saving devices, as well.

We have twenty of these stalls in one row in one of our cow barns and everyone who sees them says they are the best and most complete he has ever seen. They are convenient, neat, substantial and sanitary in every particular. We would not do without one of your "Big Boy" Carriers at any price.

We considered several other makes before we bought and are certainly glad that we decided on James Equipment.

Wishing you the success you so well deserve, I am,
Very truly,

JOHN E. GEORGE.

WITTENBERG, WISCONSIN

October 13, 1913.

James Manufacturing Co.,
Fort Atkinson, Wisconsin.

Gentlemen:—I purchased the James Equipment of Rud. Puchner, four years ago. They are in perfect condition and are giving good satisfaction.

I see no chance for improvement.

M. G. SIMONSON.

EAGLE, WISCONSIN

December, 1913.

James Manufacturing Co.,
Fort Atkinson, Wisconsin.

Gentlemen:—My James Equipment is giving satisfaction in every way; I do not see how it could be improved.

There is no comparison with other makes; all the other makes that I have seen have a great many faults and the James Equipment has none.

My equipment saves me money; first the stalls keep one cow from stepping on the next cow's udder, saving a loss of \$25 to \$50. Second, cows are as free in the stanchion as out, so they are contented and a contented cow will give more milk.

Yours very truly,
H. HUSTEN.

HOWELL, MICHIGAN
R. R. No. 5

November 13, 1913.

James Manufacturing Co.,
Fort Atkinson, Wisconsin.

Gentlemen:—I will write you to tell you we have the James Sanitary Steel Stalls which we purchased through C. C. Olsen installed and are working fine. They can't be beat.

The alignment is a fine thing—anyone can line the cows to the gutter and then they have to keep clean. The Sure Stop Post is a fine improvement—the cows have to go into the stanchion and no other place.

The Self-cleaning Manger is a labor saving device.

The Litter Carrier, Big Boy No. 2, is a fine thing; it runs easy and works fine in every way.

The only thing we lack now is the Feed Carrier, and our barn will be pretty well equipped the James Way.

There are other barn equipments around here, but the James has them all beat. I received your big circular you sent me—it is a dandy picture.

Yours for success,

FRED SCHREPFFER & SON,

Per Royal Schrepfer.

CENTER SQUARE, PA.

November 11, 1913.

James Manufacturing Co.,
Fort Atkinson, Wisconsin.

Gentlemen:—I must say that the James Equipment is the most complete and sanitary stuff I know. I have your full equipment of stalls and self-raising mangers. I am more than pleased with them, and you can use me for reference. I now want prices on your water buckets for twenty head, ten in a row.

Yours very truly,

H. C. WOOD.

CHOKIO, MINNESOTA

December 26, 1913.

James Manufacturing Co.,
Fort Atkinson, Wisconsin.

Gentlemen:—I have received the stalls and put them in. Everything was O. K. It was simple enough to put them up.

Yours truly,

H. P. CARLSON.

ROBBINS, WISCONSIN

January 30, 1914.

James Manufacturing Co.,
Fort Atkinson, Wisconsin.

Dear Sirs:—I am very much pleased with the James Equipment. The cows keep clean, look better, and give more milk.

I used the litter carrier today to clean one side of the barn and find cleaning the barn a snap. Only takes half the time it did with the wheelbarrow.

James Way is the best way.

Yours truly,

TAMARACK FARM,

Charles Kugel.

ETNA, MAINE

January 21, 1915.

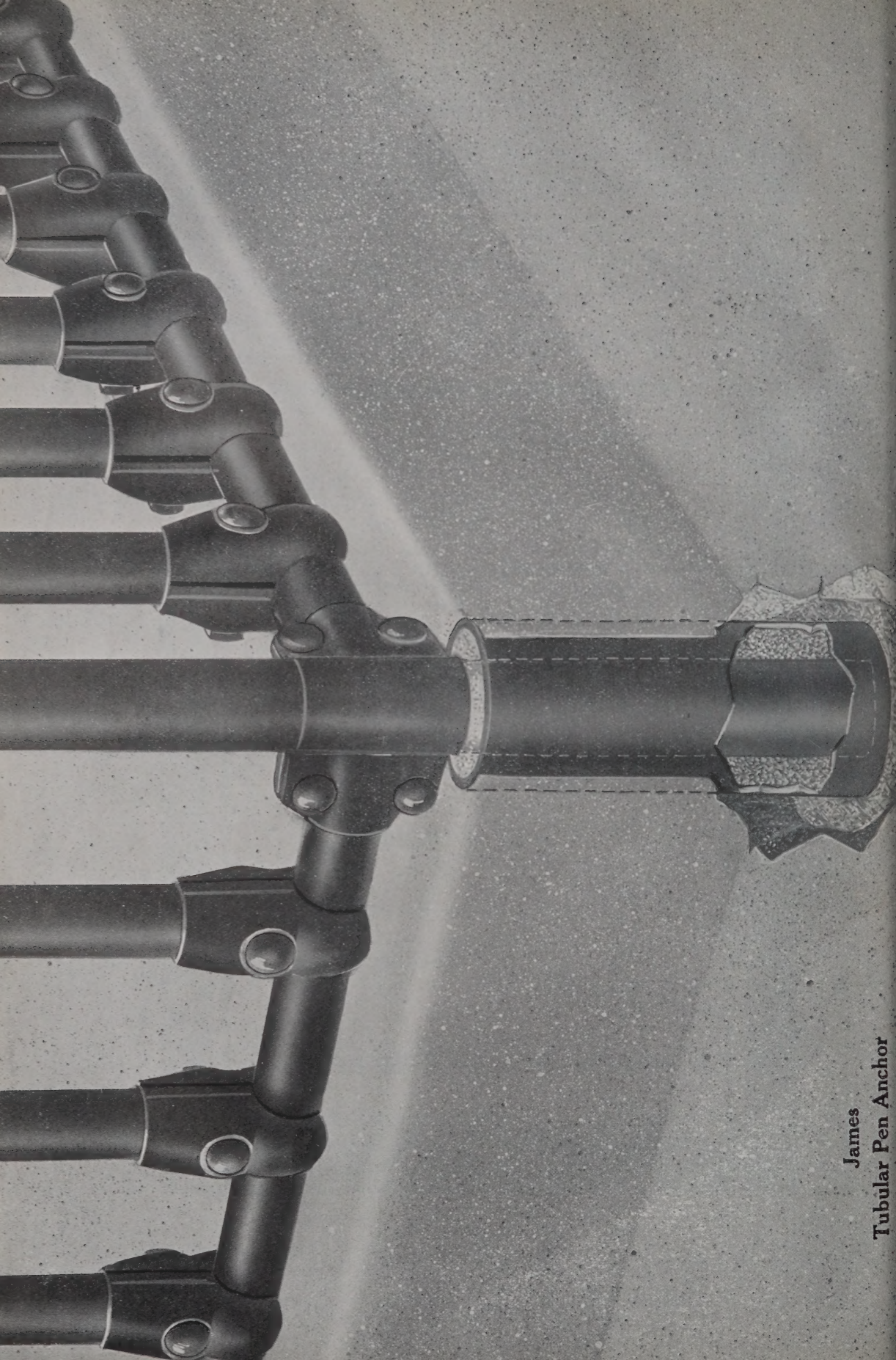
The James Equipment in my barn is giving satisfaction in every way. I would not exchange mine for any two of other makes I have seen. It saves me money in keeping cows clean and from wasting feed. Will send you photo of barn and herd later.

ALVA L. SYLVESTER.

JAMES PENS

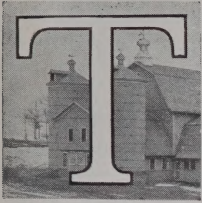
for Cows, Bulls and Calves

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James
Tubular Pen Anchor

James Sanitary Steel Pens



THE money to be made in dairy farming depends in no small degree on the care and treatment given the animals.

James Sanitary Steel Pens have been developed to aid in making the dairy barn the biggest profit-maker possible. And in the building of these pens, the same principles have been followed that underlie the success of James Cow Stalls.

Not only do James Pens fasten the animals securely, but they provide the maximum of cleanliness and comfort, and interfere the least with light and proper ventilation, thus promoting health.

They also reduce barn work and pay big dividends on the investment through the saving of labor alone.

James Pens are Easy to Set Up

The James Pens are most easily erected. It is not necessary to set each upright in the concrete—a tedious task which is required in erecting some pens.

James Pens, excepting for the corner and gate posts, are shipped assembled in panels. The panels are put together at our factory and the fittings placed on the posts before shipment. When you receive them it is only necessary to place the corner and gate posts in the anchors, then with a wrench loosen the fittings on the posts and bolt the panels firmly in place; then fill the anchors with cement.

James Tubular Pen Anchors

The pen anchors are the only part of the pens required at the time the concrete work is done. James Pen Anchors may be secured on short notice either from Fort Atkinson or a nearby distributing point, and the contractor can go right ahead finishing the cement work according to simple instructions supplied by us. The pens may be set up at any time later when most convenient.

This method not only makes the erection of the James Pen so easy that even a boy could do the work but it does away with the possibility of any delay in cementing the floors.

James Calf Pens

“The calf is the foundation of the whole dairy industry. Stunt the calf and it can never develop into the profitable cow which good care and thrifty growth would have produced. The first year is the most important in any cow’s life.”

Like any other baby, the calf is very sensitive, requiring the proper care and surroundings, as well as suitable food, if it is to thrive and grow into a vigorous animal.

The best producing cows are both born and made—and many a naturally good cow has been spoiled in the first few weeks or months of her life; or has received unnecessary setbacks which later have cost her owner many dollars every year because of a lessened ability to produce milk.

James Sanitary Calf Pens make it possible to give the little fellows the start in life which they should have—clean, dry, comfortable quarters with plenty of light and fresh air.

At the same time, the work of caring for the calves is lessened and the saving of labor alone pays mighty big dividends on the investment.

The James Calf Pen, with its Sanitary Self-Cleaning Manger, enables you to feed each calf just the amount it should have; the fast eating and fast drinking calves cannot rob the others.

The feeding of milk to the calves becomes an easy matter when they are confined in the James Calf Pen; in them, one man can feed half a dozen or more in the same time and with less work than is required to feed two in the ordinary way.

The James Mangers and Stanchions make it easy to break calves of sucking one another. The sucking habit seems to be caused by the milk taste in the mouth of the calf, giving him a desire to suck until this taste is removed.

By confining the calves in the stanchions while they are being fed milk, they may be given dry feed, after they are through drinking, to take away the milk taste. Within ten or fifteen minutes the calves will have forgotten their desire to suck and in a few days lose the habit entirely.

The stanchions may be controlled by a single lever, opening or closing them all at the same time; or they may be opened or closed one at a time.

Stanchions are adjustable in neck space, accommodating the calves as they grow.

The James Cow Pens

At times, roomier quarters are required for the cows than is afforded by the regular stall.

During calving time and whenever there are sick cows in the barn, nothing in the way of equipment is quite so greatly appreciated by the cows and by the owners as the James Sanitary Steel Cow Pen.

Never should the dairy cow be handled more gently or with more consideration than when with calf—this being the period of greatest importance to the future well-being of the animal and her young.

Nothing could be more cruel than to permit a cow to calve confined in a stanchion, comfortable as a stanchion may be under ordinary circumstances. Suitable maternity quarters are an absolute essential, even when considered only from the standpoint of profits.

A cow should be kept in a roomy, clean, dry pen for several days before the calf is due, in order that she may accustom herself to her new surroundings.

This isolation and freedom is a great help toward the mother doing well, for in most cases Nature will do all that is necessary, if the cow has warm, dry, comfortable quarters.

The James Cow Pen is also a great convenience, making it possible for the attendant to watch the cow during calving, without the necessity of disturbing or exciting her.

After the calf has been taken away, the isolated quarters and comfortable surroundings aid in keeping the cow quiet and calm so that her milk will sooner be established on a full and even basis.

For the Sick Cows

As one writer puts the case: "The question of caring for a sick cow brings out perhaps more effectively than in any other way how united are sentiment and profit in dairying.

"That a tender, sensitive animal with her unborn offspring should be gently handled and protected from hardship, receives the assent of every humane person. But when this animal is, at the same time, daily producing an article convertible into dollars and cents, and the amount of this article is increased by kindness and decreased by brutality, it is then that sentiment and profit should unite and say, 'Be kind to the cow.'

"Realizing this relation between the health of the cow and her profit to the owner, it seems reasonable to assert that no dairy barn is complete without some provision for isolating a cow. Once she shows any disorder or comes under suspicion in any way, it is necessary to separate her from the herd. The isolation quarters should insure to a sick animal abundant supply of light, air, heat and comfort, with a freedom from noise and disturbance, and should be capable of thorough disinfection after use."

Not only does the James Cow Pen meet every requirement in providing the maximum of ventilation, light and dryness, but it affords every facility for keeping the pen clean, and may be disinfected at any time. It has the least possible surface to catch the dust.

James Tilting Feed Manger

The James Tilting Feed Manger for cow pens is a time and labor saver in feeding and watering the cow, and is one of the most convenient devices about the barn.

It is the only feed manger that solves the problem of feeding the cow in the pen; making it possible to both feed and water the animal without going inside.

Where an ordinary manger is used, the droppings of the cow are certain to fall into it, unless placed so high that it prevents her eating. If placed on the floor, or low enough for feeding, the box is certain to become fouled, to be tramped on, and to interfere with the cow's freedom.



James
Bull Stanchion and Manger

The James Tilting Feed Manger is placed at a convenient height for the cow; it is inside the pen while she is eating, and outside the pen, out of her way, the balance of the time. It takes up no room inside the pen when not in use, giving the cow the full benefit of the space.

To feed, the manger is filled and tilted in, locking in position automatically; when the cow is through eating, it is tilted out. To clean, the manger is dropped to the floor outside the pen and quickly swept or flushed.

The James Sanitary Steel Bull Pen

The James Sanitary Steel Bull Pen is the one satisfactory way of keeping the bull. He no longer need be tied by a ring in his nose, but can be turned loose to move about with freedom, within sight of the herd, but where he can do no harm.

A bull is heavy on his feet; it is cruel to confine him in cramped quarters where he has no means of relief.

When turned loose in a James Pen he has plenty of room to change position, and to secure needed exercise by moving about. The freedom given the bull keeps him in better condition physically and in better humor—he is far less apt to become dangerously ugly, than when fastened in a narrow stall; this alone is worth the price of the pen.

The James Bull Pen also vastly simplifies and makes safe the handling of the bull. In it, he can be shown to visitors without going inside.

When it is necessary to enter the pen for the purpose of cleaning or for any other reason, the bull can be fastened in the stanchion, where he is absolutely secure. He cannot get loose until he is turned loose.

This safe, sanitary and humane means of confining and caring for the bull is just as important as any other part of your barn equipment.

Indeed, at any time it may be of far greater importance, by saving your life, or preventing serious injury.

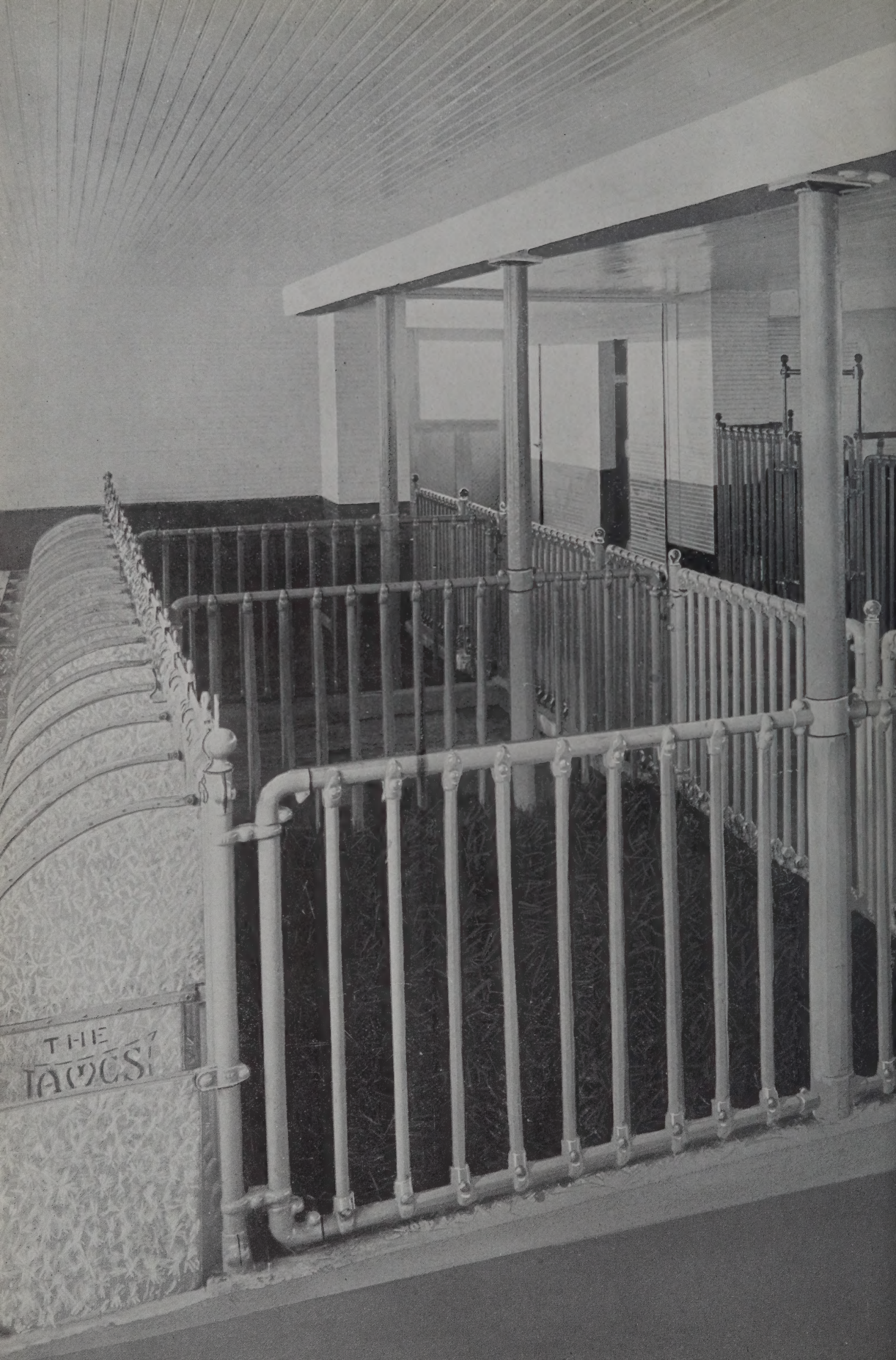
The pen is strong, sanitary, durable, easily kept clean, and constructed so as to interfere but little with the light and with free circulation of air.

The stanchion is strongly built of 1½-inch double strength steel piping and best malleable; wood lining bolted on. Stanchion is closed by slamming shut; is easily and quickly opened by merely raising the latch, but cannot be opened either from the inside or the outside by an animal.

The Sanitary Manger makes it possible to feed and water the bull without going inside the pen. Manger is easily cleaned.

Watering Buckets for James Pens

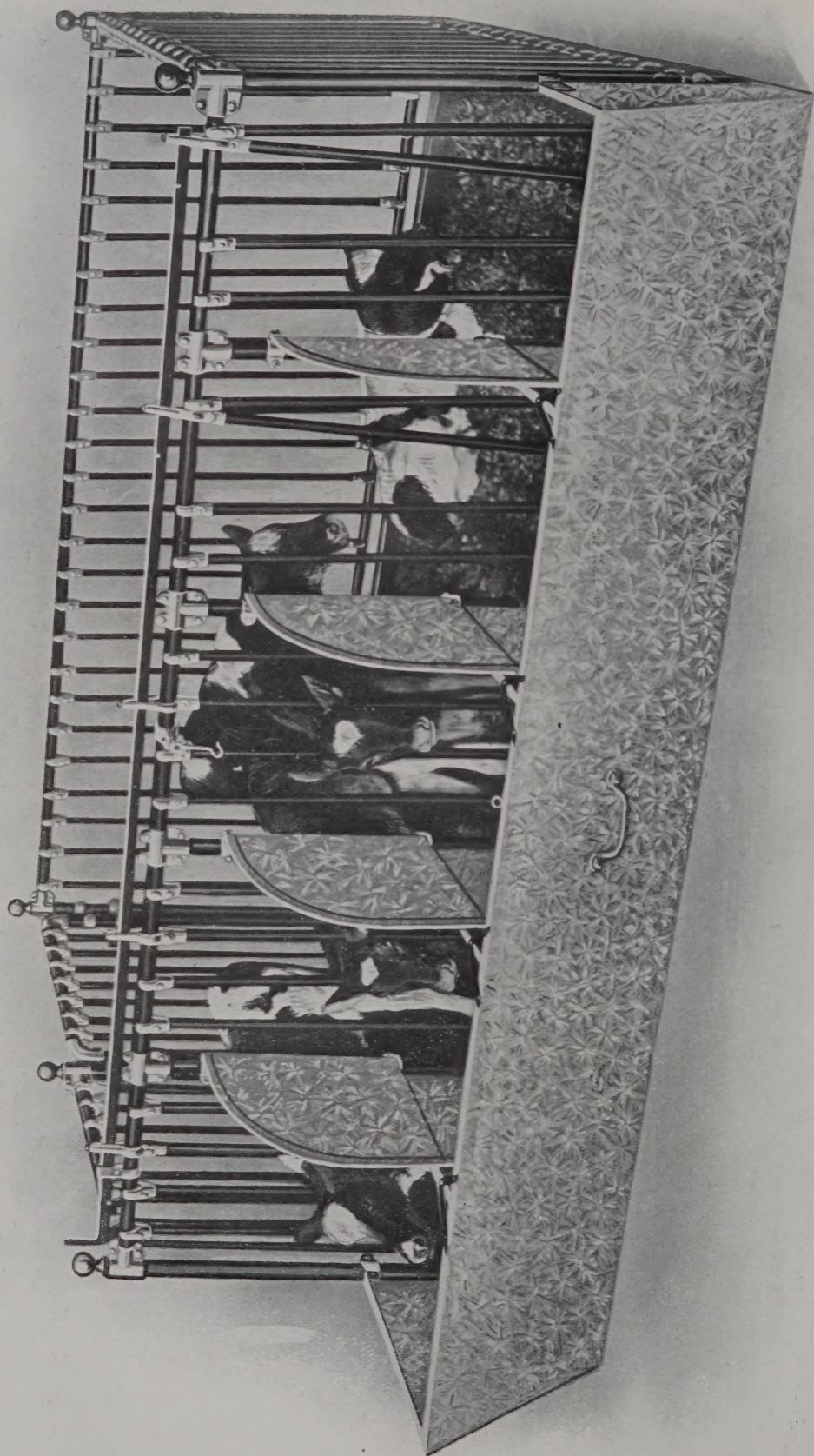
The James Individual Watering Bucket described on page 179 may be attached to any James Pen and provides the most convenient and sanitary means of watering the animals.



THE
LION



Pen Dep't
Barn at Waukesha, Wis.
Brown & McMillan, Milwaukee, Owners.



James Sanitary Steel Calf Pen.

James Sanitary Calf Pen

(PATENTED)

SPECIFICATIONS

CORNER POSTS: $1\frac{7}{8}$ -in. O. D. steel piping. Used with James Tubular Pen Anchors.

GATE POSTS: $1\frac{7}{8}$ -in. O. D. double strength steel piping. Used with James Tubular Pen Anchors.

INTERMEDIATE POSTS: Where used, are of $1\frac{5}{8}$ -in. O. D. steel piping. Used with James Tubular Pen Anchors.

PANEL HORIZONTALS: $1\frac{5}{8}$ -in. O. D. steel piping.

PANEL UPRIGHTS: $1\frac{1}{16}$ -in. O. D. steel piping—spaced approximately 5 inches on centers.

ANCHORS: James Tubular Pen Anchors 4-in. O. D. steel piping, 12 in. long. Pen anchors are the only part of the pen required at the time the concrete work is done. (See page 99.)

FITTINGS: Best annealed malleable with $\frac{7}{16}$ -in. bolts.

ORNAMENTS: Best malleable; dust proof type.

GATE: Frame of $1\frac{5}{8}$ -in. O. D. steel piping with $1\frac{1}{16}$ -in. O. D. steel piping uprights. All fittings of best malleable. Equipped with double latch and safety lock. Gate can be hung to swing in or can be hung to swing out. Hinges are offset; of best malleable, half the hinge bolted not only to the gate post but also to the upright next to it; the other half of hinge bolted not only to the gate frame but also to the upright next to it.

FINISH: Same as in other specifications. (See page 67.)

HEIGHT: With 6-in. curb, pen is approximately 3 ft. 10 in. from the floor.

PRICE: Will be quoted on application, as all calf pens must be made up special. Please send sketch showing length and breadth of pen, number of sides required and location of each.

SHIPPED ASSEMBLED IN PANELS.

James Calf Stanchions

James Calf Pen Panels will be fitted with James Calf Stanchions at an additional cost of only 25c per stanchion. James Calf Stanchions are adjustable in neck space; may be opened and closed one at a time or all together. Made of $1\frac{1}{16}$ -in. O. D. steel piping; fittings of best malleable; all stanchions connected with bar steel lever.

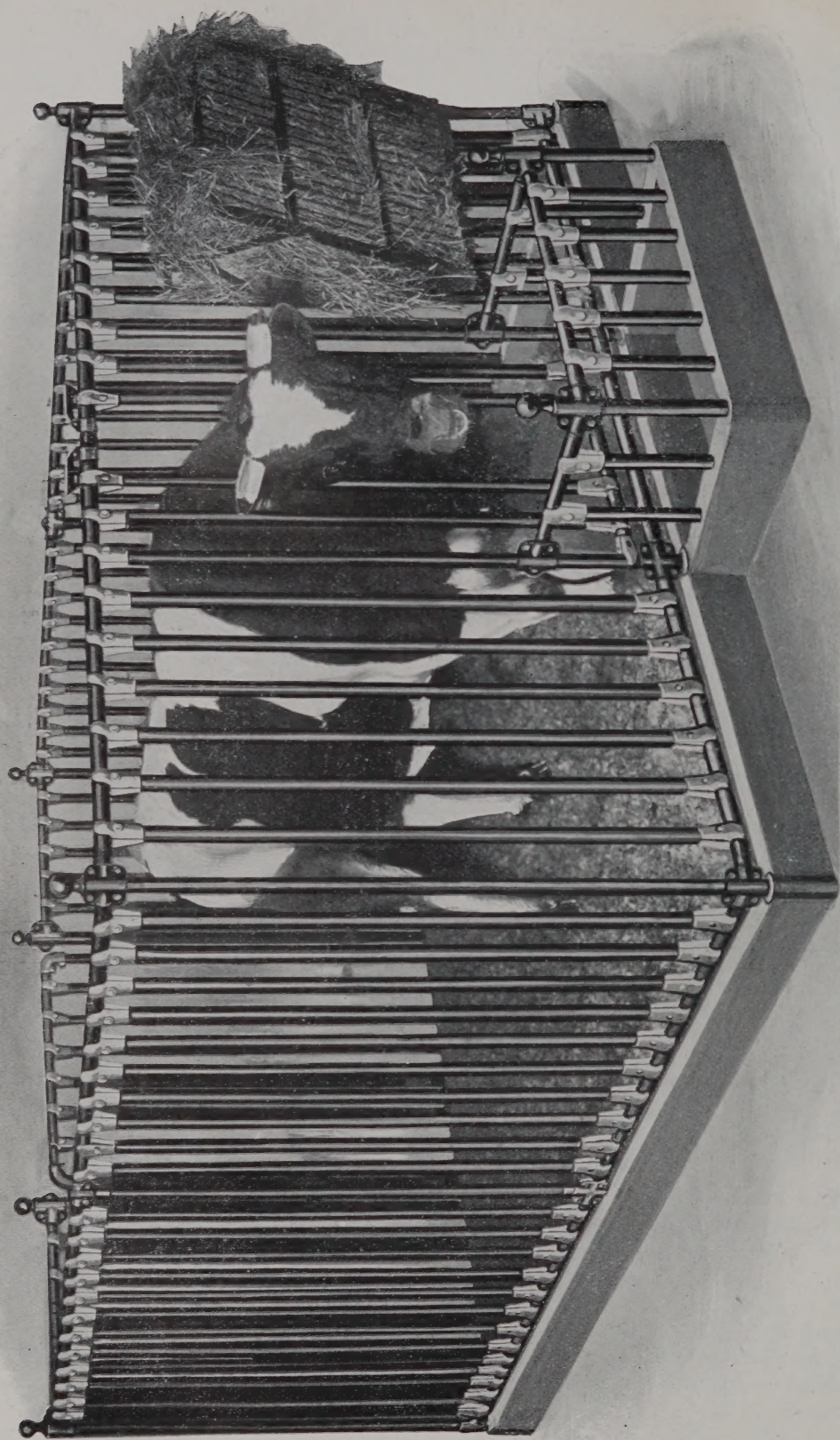
Calf Pen Mangers

Constructed the same as the James Self Cleaning Mangers for cow stalls, described on page 35, excepting that James Calf Pen Mangers are made with flat bottom and without manger lifting springs. Price, for each division, \$3.00.

Calf Pen Manger Guards

As shown in illustration. Made of 20-gauge galvanized sheet steel, edge reinforced with $\frac{1}{8}$ in. by $\frac{3}{4}$ in. bar steel well riveted. Price, when ordered with the manger, each 50c; if ordered separately, each 75c. Not furnished regularly on ends of mangers.

Prices are F. O. B. Ft. Atkinson, Wis.



James Sanitary Bull Pen.

James Sanitary Bull Pen

SPECIFICATIONS

CORNER POSTS: 1 $\frac{7}{8}$ -in. O. D. double strength steel piping. Used with James Tubular Pen Anchors.

GATE POSTS: 1 $\frac{7}{8}$ -in. O. D. double strength steel piping. Used with James Tubular Pen Anchors.

INTERMEDIATE POSTS: When used, are of 1 $\frac{7}{8}$ -in. O. D. double strength steel piping. Used with James Tubular Pen Anchors.

PANEL HORIZONTALS: 1 $\frac{5}{8}$ -in. O. D. steel piping.

PANEL UPRIGHTS: 1 $\frac{5}{8}$ -in. O. D. steel piping, spaced 6 inches on centers.

ANCHORS: James Tubular Pen Anchors 4-in. O. D. steel piping, 12 in. long. Pen anchors are the only part of the pen required at the time the concrete work is done. (See page 99.)

FITTINGS: Best malleable with $\frac{1}{2}$ -in. bolts.

ORNAMENTS: Best malleable; dust proof type.

GATES: Frame of 1 $\frac{5}{8}$ -in. O. D. steel piping, with 1 $\frac{5}{8}$ -in. O. D. steel piping uprights. All fittings of best malleable. Equipped with double latch and safety lock. Gate can be hung to swing in or can be hung to swing out. Hinges are offset; of best malleable, half the hinge bolted not only to the gate post but also to the upright next to it; the other half of hinge bolted not only to the gate frame but also to the upright next to it.

FINISH: See page 67.

HEIGHT: Pen is approximately 5 ft. 4 in. from the floor.

PRICE: Will be quoted on application as all bull pens are made up special. Please send sketch showing length and breadth of pen, number of sides required and location of each.

SHIPPED ASSEMBLED IN PANELS.

James Bull Pen Manger

CONSTRUCTION: 1 $\frac{5}{8}$ -in. O. D. steel piping, with malleable fittings and dust proof ornaments.

SIZE: Regularly furnished 23 inches wide and 26 inches high from floor. Size and shape is varied to suit conditions.

PRICE: Will be quoted on application.

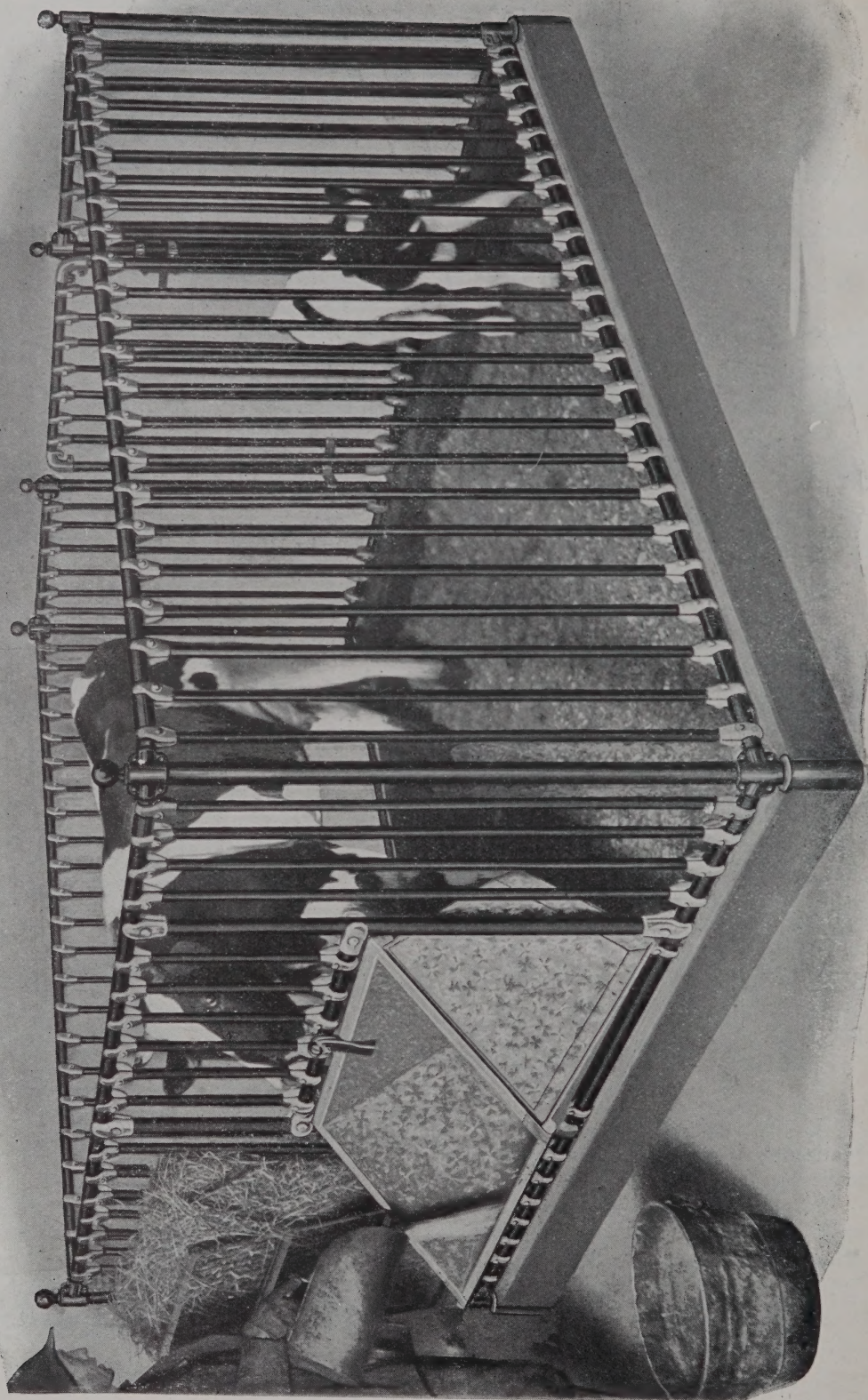
James Bull Stanchion

Uprights of 1 $\frac{5}{8}$ -in. O. D. double strength steel piping with wood linings bolted on. Horizontal at bottom is of quadrangular steel piping 1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ in. Fittings are of best malleable.

Neck space is adjustable from seven to fifteen inches. Stanchion lock is of safety type. Cannot be opened by bull. Locks when stanchion is closed; of best malleable. (See page 102 for illustration.)

Price of bull stanchion, built into panel, \$3.00.

Prices are F. O. B. Ft. Atkinson, Wis.



James Sanitary Cow Pen.

James Sanitary Cow Pen

SPECIFICATIONS

CORNER POSTS: $1\frac{7}{8}$ -in. O. D. steel piping. Used with James Tubular Pen Anchors.

GATE POSTS: $1\frac{7}{8}$ -in. O. D. double strength steel piping. Used with James Tubular Pen Anchors.

INTERMEDIATE POSTS: When used, are of $1\frac{5}{8}$ -in. O. D. steel piping. Used with James Tubular Pen Anchors.

PANEL HORIZONTALS: $1\frac{5}{8}$ -in. O. D. steel piping.

PANEL UPRIGHTS: $1\frac{1}{16}$ -in. O. D. steel piping—spaced approximately 5 inches on centers.

ANCHORS: James Tubular Pen Anchors 4-in. O. D. steel piping, 12 in. long. Pen anchors are the only part of the pen required at the time the concrete work is done. (See page 99.)

FITTINGS: Best malleable with $\frac{7}{16}$ -in. bolts.

ORNAMENTS: Best malleable; dust proof type.

GATE: Frame of $1\frac{5}{8}$ -in. O. D. steel piping with $1\frac{1}{16}$ -in. O. D. steel piping uprights. All fittings of best malleable. Equipped with double latch and safety lock. Gate can be hung to swing in or can be hung to swing out. Hinges are offset; of best malleable, half the hinge bolted not only to the gate post but also to the upright next to it; the other half of hinge bolted not only to the gate frame but also to the upright next to it.

FINISH: See page 67.

HEIGHT OF PEN: Approximately 5 ft. from floor.

PRICES: Will be quoted on application, as all cow pens must be made up special. Please send sketch showing length and breadth of pen, number of sides required and location of each.

SHIPPED ASSEMBLED IN PANELS.

James Tilting Feed Manger

Made of heavy galvanized sheet steel, built on a framework of galvanized angle iron $1\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{8}$ in., and $1\frac{3}{8} \times \frac{7}{8} \times \frac{1}{8}$ in., strongly riveted. Upper edge of manger, inside of pen, reinforced with heavy wood bar, which prevents the cow injuring herself on the edge of manger. Hinges are of best malleable, the automatic lock is of bar steel. (See page 109.)

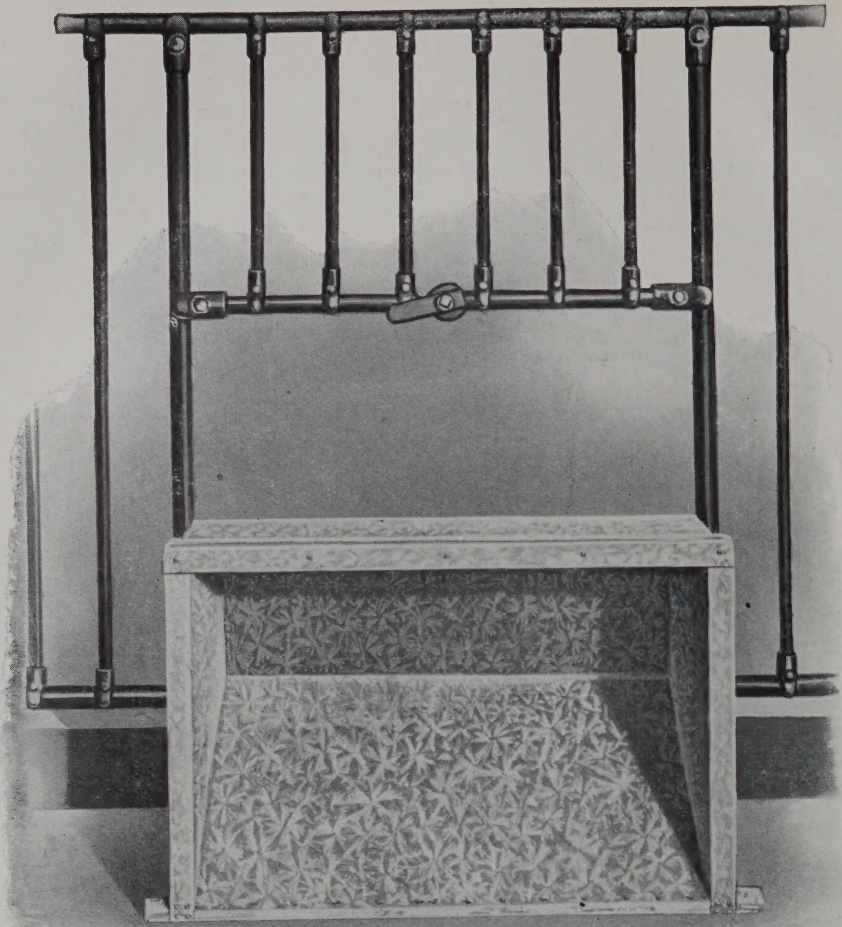
Price, built into panel, each \$8.00.

Stanchion for James Cow Pen

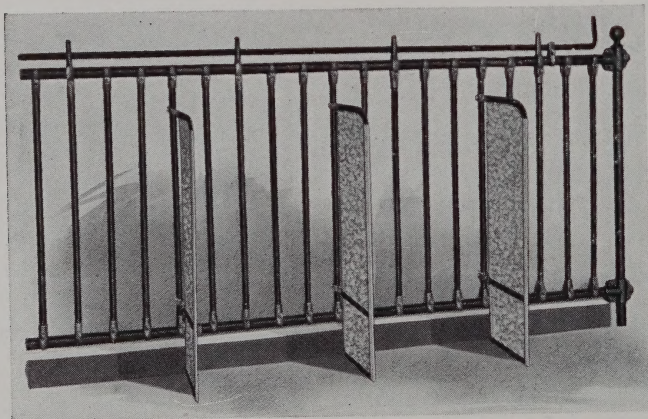
Uprights of $1\frac{5}{8}$ -in. O. D. steel piping with wood linings bolted on. Horizontal at bottom is of $1\frac{5}{8}$ -in. round pipe. Fittings are of best malleable. Neck space is adjustable from seven to fifteen inches. Stanchion lock is of safety type. Cannot be opened by cow. Locks when stanchion is closed; of best malleable.

Price of stanchion, built into panel, \$3.00.

Prices are F. O. B. Ft. Atkinson, Wis.



To clean, may be dropped to alley floor,
and swept out or flushed.



Calf Pen Head Guards

As shown in illustration above. Made of 20-gauge galvanized sheet steel, edge folded and compressed, reinforced with $\frac{1}{8}$ in. bar steel. Price, each \$1.75.

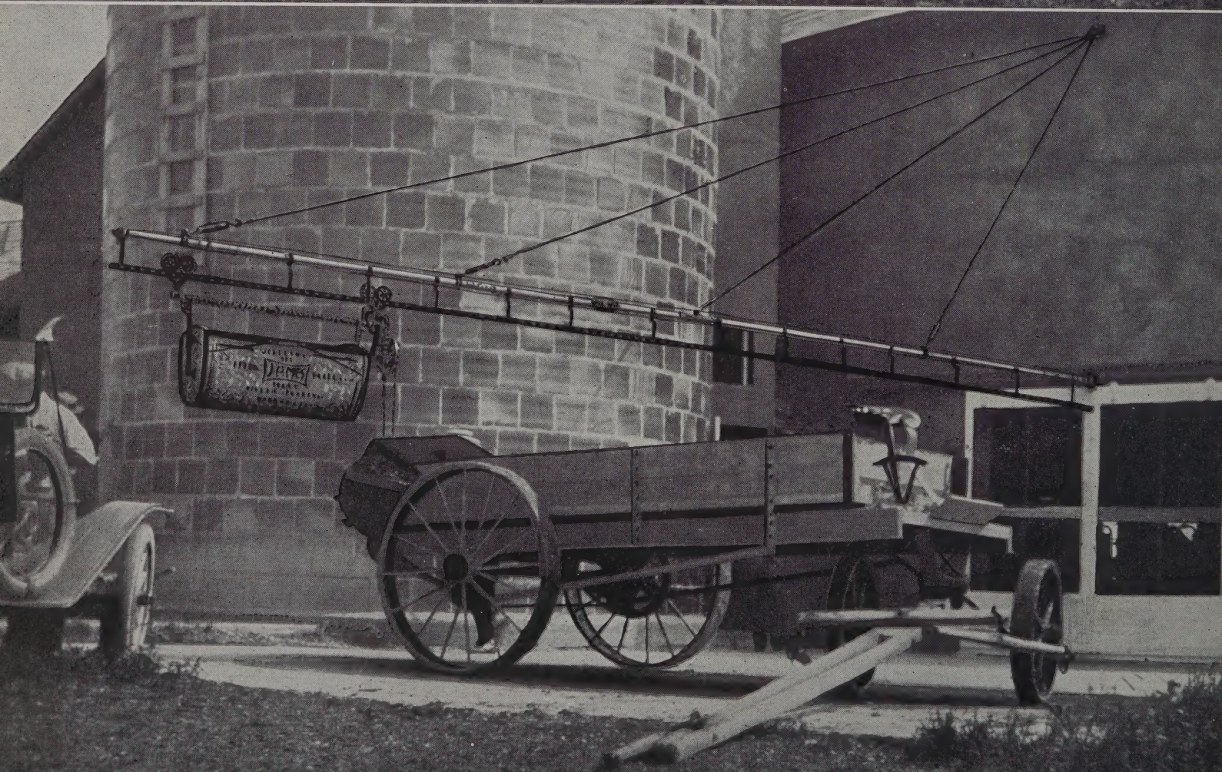
JAMES CARRIERS

Litter, Feed and Milk Can

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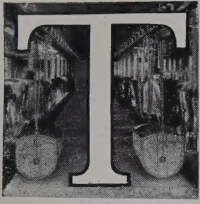


A Yard Full



The James Way keeps the yard clean

The James Carriers



THE JAMES CARRIERS have many important and distinctive features, not only in the carrier itself, but in the track, hangers, switches, removable track section and swinging steel crane.

All the objections to the old-style carriers are completely overcome; and in addition, the James Carriers possess added improvements never before utilized in carrier equipment.

They are not an experiment. The men who originated them and brought them to their present state of perfection know from experience just what is required of a carrier, for they have been practical, successful dairy farmers themselves, and have used, or seen in use, probably every carrier on the market.

James Carriers are the result of long years of observation of the various types in actual use in barns, where the strong points and the weak features have been shown up by the wear and strain of daily use.

The strong points have been retained and new features added, making them the most practical, most serviceable and most satisfactory of all.

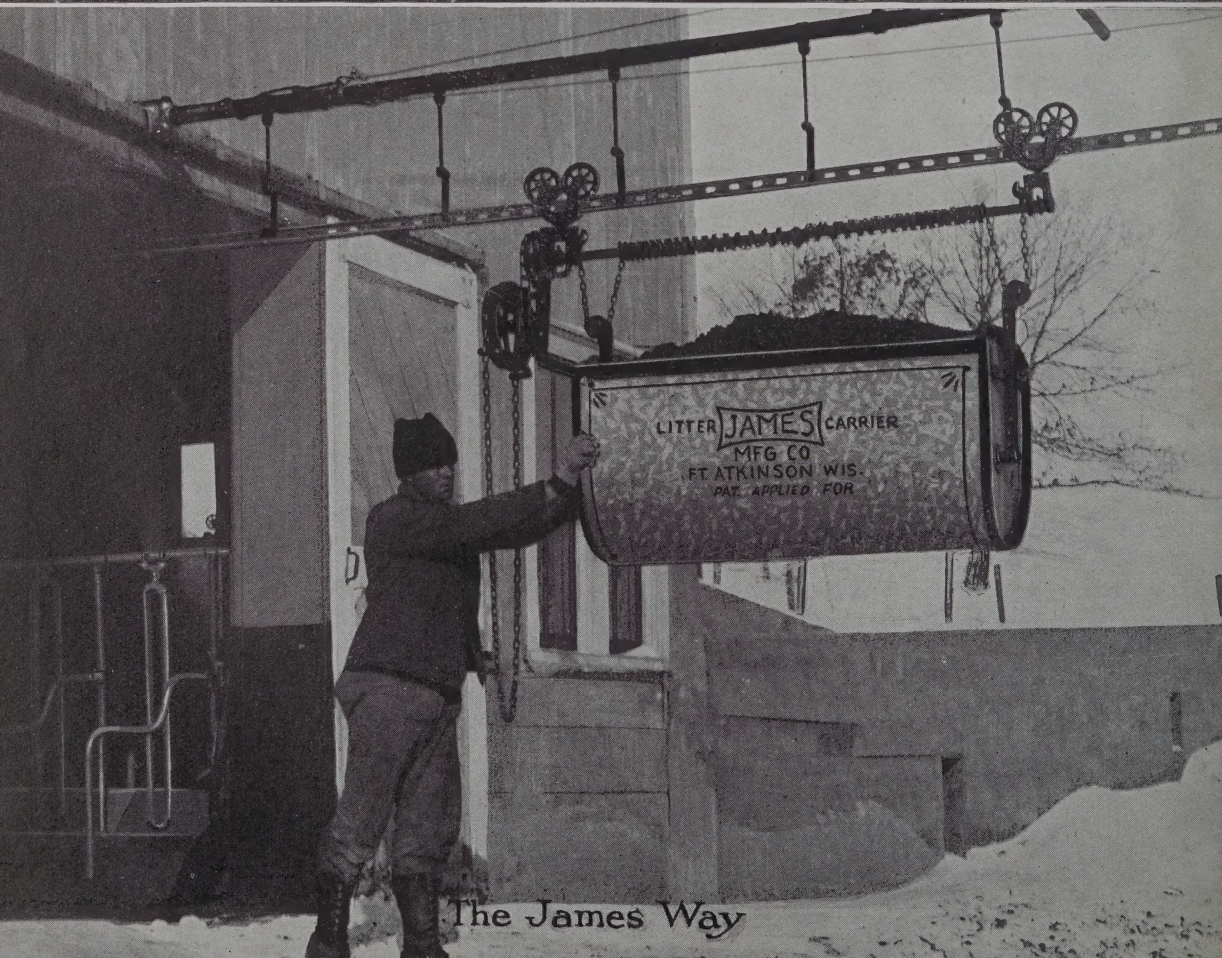
A litter carrier has heavy work to do. Not only must it oftentimes carry half a ton of manure, but it is in daily use throughout much of the year. Slammed about by careless help, or in the hurry of cleaning up the chores, some part will give way unless it be exceptionally strong and well made.

James Litter Carriers are more strongly and heavily built than any other on the market, every part is heavy enough to carry three times the load to which it will ever be subjected as a manure carrier. The track and hangers, the safety switches, the removable sections, and the swinging crane all have several times the strength necessary to support the carrier when most heavily loaded. No amount of ordinarily rough usage will cause a breakdown.

James Carriers are much heavier than others for which you would have to pay the same price; the extra weight of malleables and steel alone costs us several dollars more on a carrier, to say nothing of the better workmanship and superior finish. Yet we offer them to you for the same price that you would have to pay for the lighter weight and more poorly constructed outfit.

This extra weight means heavier malleables, a stronger angle iron framework through the tub, steel plate reinforcement on the ends, a solid, cold rolled, steel shaft—in fact greater strength at every point where strain or wear may come. It insures durability, a saving of repairs, and makes certain satisfactory service for a long period of years.

The simplicity of the entire James Carrier outfit also makes for greater strength and durability, the extra weight of material being only at those points where strength is needed; and there are no complicated parts to wear.



In the following pages we have described the carriers in detail, and we want you to note that in each case we have stated the exact weight, so that you may compare for yourself the weight of our carriers and those offered you by others at equal prices.

The photographs and descriptions show why it is that James Carriers are more easily erected and more easily operated than any others; why they run more smoothly on the track; how they meet every condition ever required of a carrier in the barn; why the I-Beam track is more suitable in every way for curves, switches and outside work; how the automatic safety stop blocks make it impossible for a carrier to run off the track; and how the simple construction eliminates gearings, ratchets and cogs that are so liable to wear or break.

And as you study the carrier proposition, we ask that you bear in mind that while there may be carrier outfits offered you at lower prices, the James Carriers are so built as to cost you by far the *least per year*—and that is the only fair way in which to figure the cost of any article.

James Carriers are “long life” carriers—built to stand the strain and wear of years—made to forestall breakages and repairs—made to save the maximum of work and time. We are proud of them, believing that each is the best that can be built to meet the specific purposes for which it is designed. And in this belief, we are backed up by the hundreds of enthusiastic, commendatory letters received from owners of James Carrier outfits.

And of all the litter carriers, the one that has the largest sale, and hence apparently best meets the requirements of the average dairyman, is the “Big Boy” Carrier with the No. 2 tub; and this is the outfit which we would recommend for the barn in which fifteen head of stock or more are being cared for. The No. 4 tub is the best suited for use in horse barns where a larger tub is desired, because of the bulkier manure.

The Combination outfit fills the need in the small barns, where the rigid I-Beam track is wanted inside, with a rod track outside—so as to have the advantage of the automatic return secured only by use of the rod track. With fifteen head of stock or more, however, the “Big Boy” with the swinging steel crane or outside support is recommended, for the reason that in the long run it will prove more satisfactory and more economical.

The “Chore Boy” is recommended only for the smallest barns, where but a few head of stock are cared for.

"Long Life" Tub



"Long Life" Tubs

The tubs of James Carriers, like the rest of James Equipment, are built to last throughout long years of heavy usage. The "Big Boy" tubs have been subjected to a test of more than 2,000 pounds, without breaking or developing any weakness, either in the tubs or the other parts of the carrier outfit. The Combination and the "Chore Boy" carriers are of equal strength in proportion to the loads which they are designed to carry.

James tubs are so shaped as to be self-cleaning when dumped, there being no corners where litter can collect. Ends of tubs are rounded, higher than the sides, making them neater in appearance and providing more capacity. Also prevents contents of the tub from binding the bail or clogging the latch and thus interfering with the proper dumping.

Liquid manure is often the last to be loaded, and is apt to settle at the ends; the rounded ends being higher than the sides prevent the liquids from slopping over the ends when the carrier is pushed along the track, thus making the task of cleaning the barn less disagreeable.

James tubs for the "Big Boy" carriers are constructed of 18-gauge galvanized steel, well riveted to a framework of galvanized angle iron. The angle iron at the side edges being $1\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{8}$ in. and at the ends $\frac{7}{8} \times 1\frac{3}{8} \times \frac{1}{8}$ in.; end of tub reinforced with galvanized steel plates $4\frac{1}{2}$ in. wide by $\frac{1}{8}$ in. thick, weighing $4\frac{1}{2}$ pounds each. Rivets are $\frac{3}{16}$ in. galvanized, excepting corner rivets which are $\frac{1}{4}$ in.

The heavy angle iron framework, steel plate reinforcing on the ends and the heavy riveting give the James tubs great strength and durability, making the tubs almost indestructible, and absolutely rigid so that they will not rack. The strength of these tubs, and the superior workmanship put into them, cannot well be described; but can be appreciated only on seeing the tubs themselves.

Bail

When the "Big Boy" carrier is dropped to the floor, there is no horizontal bar in the way to interfere with loading. But when the tub is raised, the bail hangers lock in position against the horizontal shaft, forming a complete bail, and giving the necessary rigidity to insure the carrier running steadily along the track.

The bail of the carrier is in place only when a complete bail is needed, and is out of the way while loading the tub.

The bail hangers are heavy, flat steel bars, $\frac{5}{16} \times 1\frac{1}{2}$ in. with malleable fittings. Being turned *edgewise* to the tub, the bail hangers will not bend when a sudden jerk of the tub puts strain upon them. In carriers where such hangers are turned *flat side* to the tub, any sudden jerking of the carrier may bend them, interfering with the operation of the latch and trip.

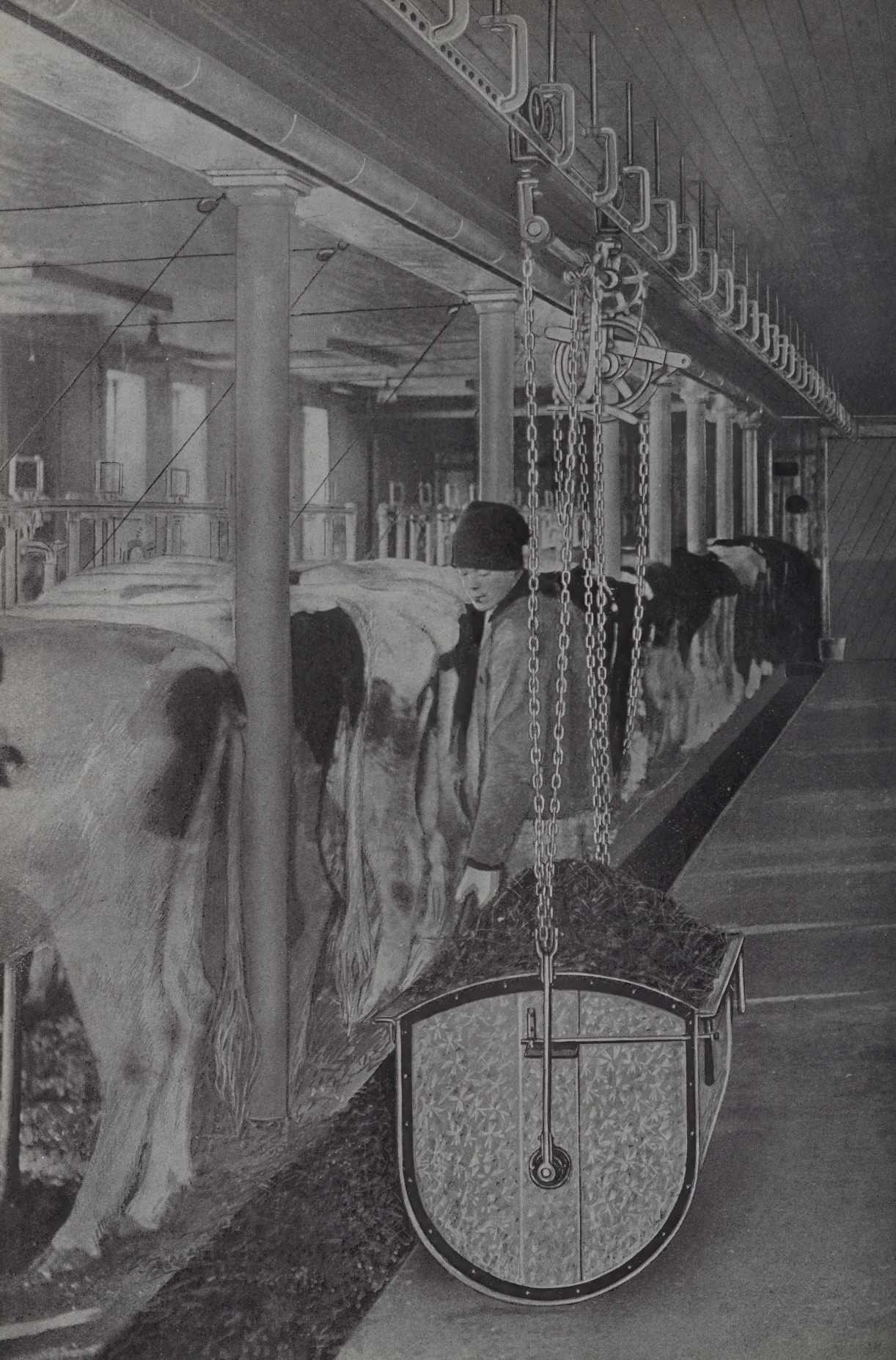
Dumps Either Side

Tub can be dumped to either side, according to which side is loaded the heavier. This makes it easier to load the spreader or wagon evenly, and gives greater dumping area.

The simple latches at each end of the tub are so connected as to lock and unlock simultaneously; latches are protected against clogging with manure.

Gudgeon

Gudgeon is of malleable, strongly riveted to the bail hanger. Gudgeon support is riveted through the two thicknesses of galvanized steel—the end of the tub and the steel reinforcing plate—and the rivets will not pull through.





Experimental Barn of
James Manufacturing Co.

Absolute Control Clutch and Brake

(PATENTED)

This exclusive James feature makes possible the quick lowering of the tub by its own weight, thus saving time in doing the chores—yet keeping the speed of descent under the absolute control of the operator.

The friction brake enables the operator to lower the tub slowly—a sixteenth of an inch, or the entire length of the chain—or drop it quickly to within a few inches of the floor, and stop it almost instantly.

The empty tub can be dropped from an eight-foot track to the floor in five seconds; the “Big Boy,” filled, can be raised to an eight-foot track in from 20 to 25 seconds. The first time you have a chance, compare this record with other carriers, and then figure out for yourself how much time this one feature will save you in a year’s time.

The friction brake and the clutch are both controlled by the one lever, and both are handled with the one hand. It is not necessary to touch the hand chain when lowering the tub—the one hand and the one lever starts, controls and stops it.

When ready to lower the tub, a quick, strong pull on the control lever will release the clutch and set the friction brake; the pressure on the lever then controls. Release the pressure somewhat and the tub begins to descend; a slight pull slackens the speed regardless of the weight in the tub; a stronger pull stops the descent.

The lever may then be released entirely, setting the clutch instantly, holding the tub firmly at that exact point; the clutch never slips.

This clutch is also a time saver when raising the tub, because it prevents any slipping back, a thing that is so annoying when raising a loaded tub with a hoist using dog and ratchet. The James clutch takes hold so quickly and firmly that, no matter how heavy the load, the James Carrier cannot slip back a fraction of an inch, even though it be raised an inch at a time. There is no lost motion.

There are no ratchet teeth on the James Carrier, nothing to break or get out of order. The X-ray picture on the opposite page shows the simplicity of the mechanism and how it operates. In the picture the clutch is set.

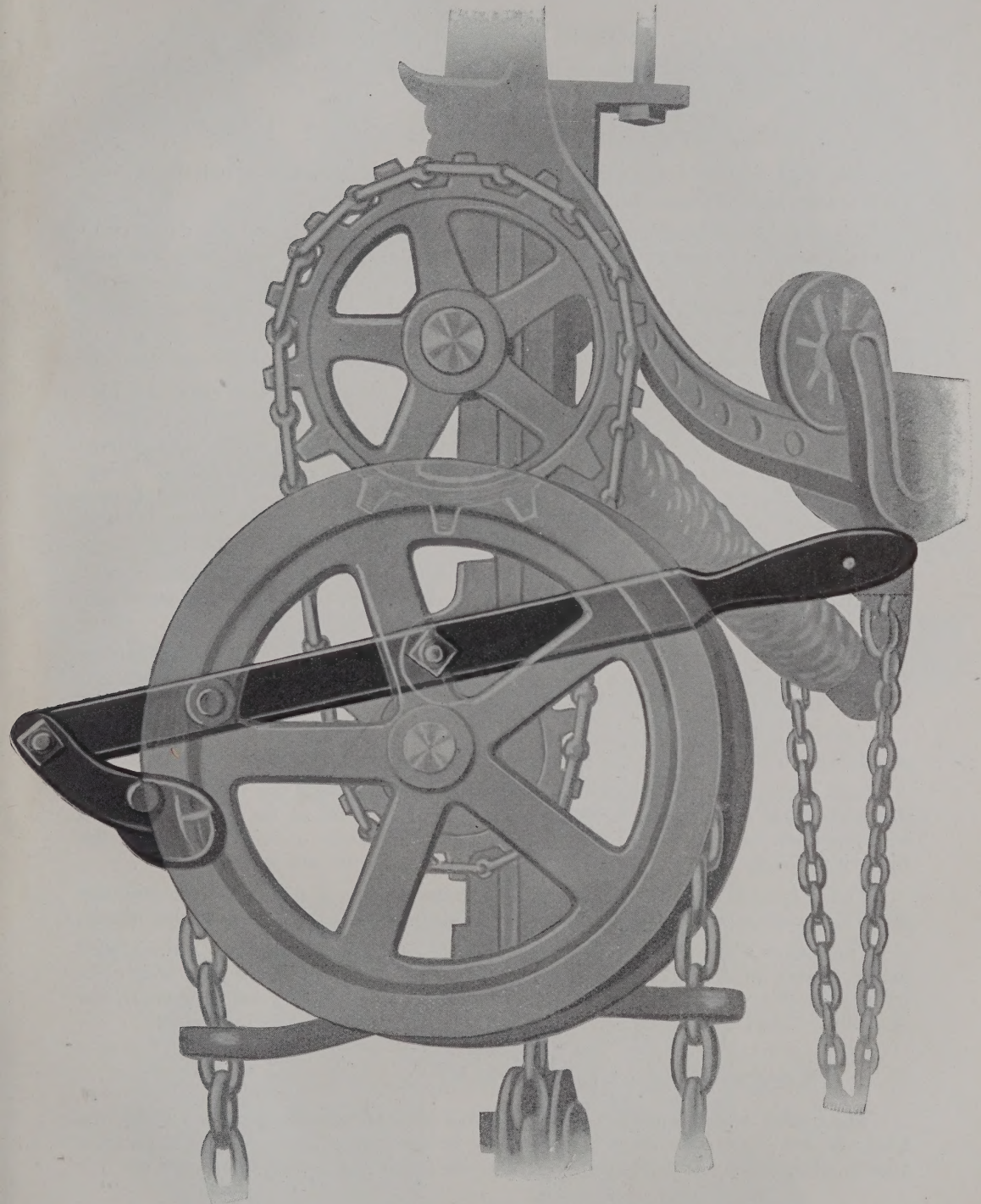
“Big Boy” Hoist

Even a little boy can operate the “Big Boy” carrier. The hoist is so geared as to make possible raising a heavy load in the shortest time without undue effort.

The chain and sprocket type of hoist is used, the chain being the same size as that used to drive most grain binders. Every mechanic knows that this type of hoist has the least friction, excepting only the direct hoist which, however, requires more power.

The worm gear hoists so often used are extremely wasteful of power, the friction causing a loss of power amounting to 50 to 75 per cent; this may be verified by any text-book on the subject, or by any engineer. The mere fact that with worm gear carriers the tub will not lower of its own weight, but must be pulled down as well as up, shows how great the friction must be in that type of hoist. When the brake and clutch on the James Carrier are both released, the tub drops almost instantly, running free, and proving how little the friction is.

The frame carrying the lower sprocket of the “Big Boy” hoist is adjustable to take up any slack in the chain, thus making it possible to overcome the effect of any wear in the lifting apparatus. Hoist is constructed throughout of the best iron and steel.



"Big Boy" Hoist, with Absolute Control Clutch and Brake.

Simple Chain Guides

Simple chain guides of malleable prevent the hand chain running off the hoist wheel.

“Long Wheel Base” Tandem Trucks

Each truck has two large, grey iron travelers, mounted tandem in a swiveled tracker wheel frame, like the trucks on a railroad car.

This arrangement keeps the travelers always in alignment with the track, doing away with any tendency to turn and bind, causing friction and wear. It also does away with any tendency to jerk, and cause the carrier to push hard.

Every farmer who has ever owned or used one of the older style of carriers that run on a flange track, with the tracker wheels side by side, will remember distinctly enough how jerkily and unevenly such a carrier runs on the track, and how hard it was to push.

But how many have ever stopped to figure out the cause of the jerking motion? Perhaps this will explain it.

Each truck of a carrier is hung on a swivel, so that the carrier will take the curve. In order that the trucks may swivel, there must be some play in the swivel joints. When you start to shove the loaded carrier along the track, the friction on the track flanges causes the tracker wheels to lag back—then suddenly the shove on the carrier becomes strong enough to overcome the friction, when the tracker wheels jerk forward.

Then they lag back again—then jerk forward. You who have used such a carrier know how hard it is to push along the track, and how as the swivel wears more and more, the trouble becomes more and more aggravating.

This jerkiness is forestalled in the James Carrier by means of the tandem tracker wheels. For any of the tracker wheels on a James Carrier to lag back or jerk forward, it would be necessary to raise either the front or the rear wheel. Here's an illustration:

Take an ordinary hoe, and hook the shank over the track; give the handle a shove parallel with the track, and it will swing back and forth like the pendulum of a clock.

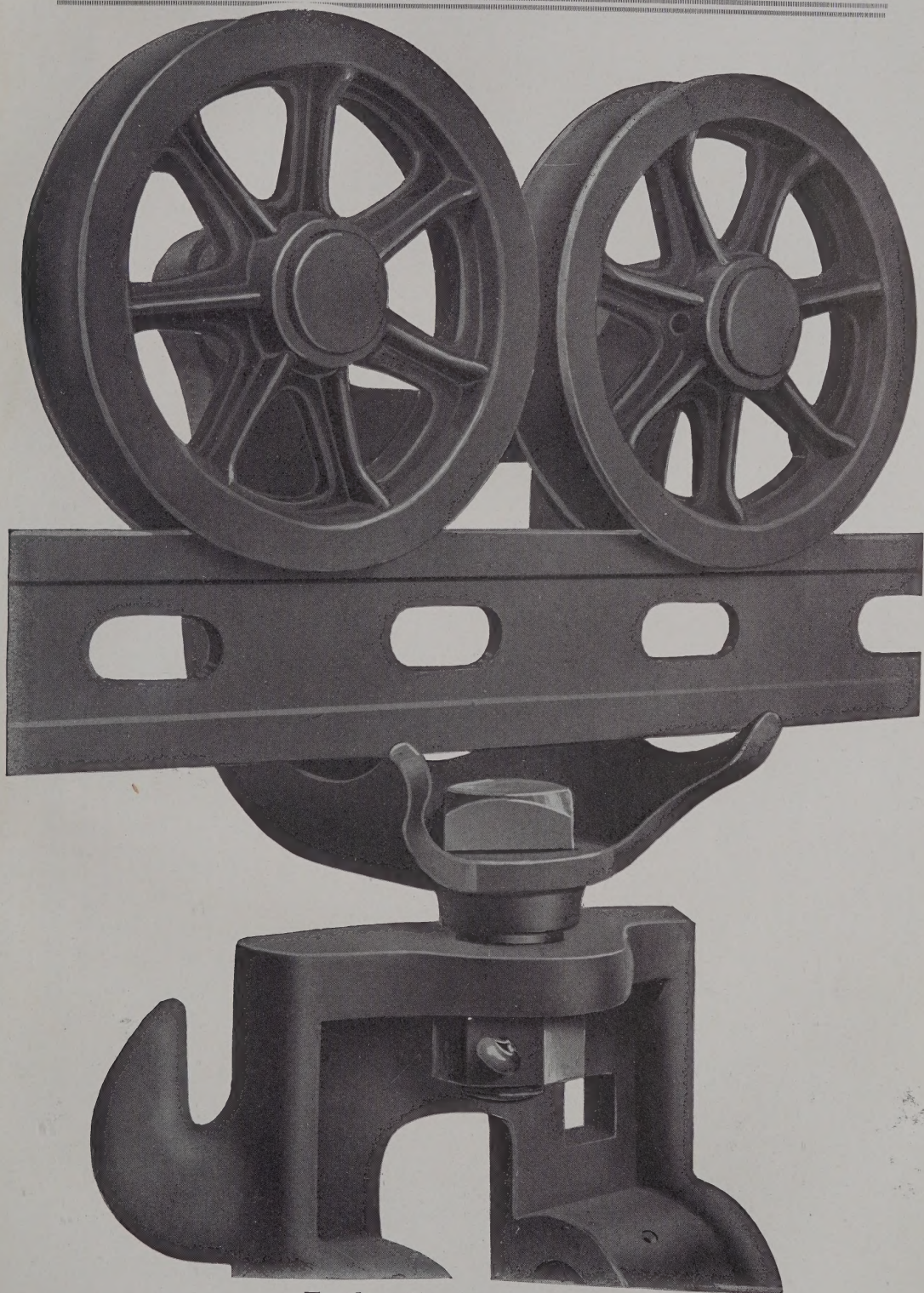
Now take a two prong or two shank garden hoe, and hang this over the track so that both shanks touch the track, giving you a two-point suspension, the same as you have with the James tandem tracker wheels. Now give the handle a shove in line with the track, it will sway back and forth two or three times and settle into position.

This is brought about by the fact that in order to sway, it is necessary to raise one of the two points of suspension. The same principle applies to James tandem tracker wheels.

The tracker wheel axle is of lathe-cut steel, the journal being machined and surfaced to size, so that the axle fits perfectly. There is an oil pocket around the axle, which distributes the oil evenly, adding to the life of the carrier and making it run more easily and smoothly. The oil pocket is filled through oil hole in the hub shown in the picture.

Keeper Prevents Carrier Jumping the Track

The tracker wheel frame is so shaped that it prevents the carrier from jumping the track; in fact, the carrier can be removed only by the human hand, swinging the tracker wheels, wheel frame and frame support to one side and lifting them at the same time.



Tandem Tracker Wheels.



Solid Steel Shaft

The shafts used on all James Carriers are of cold rolled, solid steel, $1\frac{1}{4}$ inches in diameter. The quality of material is the same as that used in factories for line shafting, where its strength and success have been fully proven.

The solid steel shaft will not bend—it may spring a trifle with an overload, but when the weight is removed it immediately springs back into place.

The solid steel shaft is rolled to exact size, and fits the bearings and sprocket perfectly, leaving practically no chance for any play and wear. Tubing, on the other hand, though often used for carrier shafts, is not suited to the purpose, because it varies in size, and cannot be made to fit accurately; and because tubing once bent, remains bent.

Lifting Chain

The lifting chain or cable is the weakest point in many carriers—the limited winding space on the shaft making it necessary to use small chain or cable of insufficient strength.

The lifting chain on James Carriers has the full length of the shaft on which to wind; heavy, straight link chain is used, this being strongest and best suited to the purpose.

It is attached to the center of the shaft and winds up in such a way that it forms an open spiral—the chain does not climb upon itself, causing it to rub and wear. Chain is tested for five times the load it will have to carry.

The three point suspension distributes the load equally along the shaft; and gives a double purchase, making it easier to raise the tub.

High Lift Feature

The long winding space on the shaft makes it easy to transform the carrier into a high lift carrier, by merely putting on longer lifting chains. There is plenty of room on the shaft for all the chain required for any ordinary height of ceiling.

The James Carrier tubs raise higher than others, coming closer to the track, oftentimes avoiding the necessity of excavating when there is a rise of ground just outside the door; the carrier more readily clears the spreader or wagon, and the manure can be piled higher when it is necessary to let it accumulate in the yard.

The "Big Boy" Carrier with tub No. 4, measures but three feet one inch from bottom of track to bottom of tub; with tub No. 2 it measures but three feet.

Removable Track Section

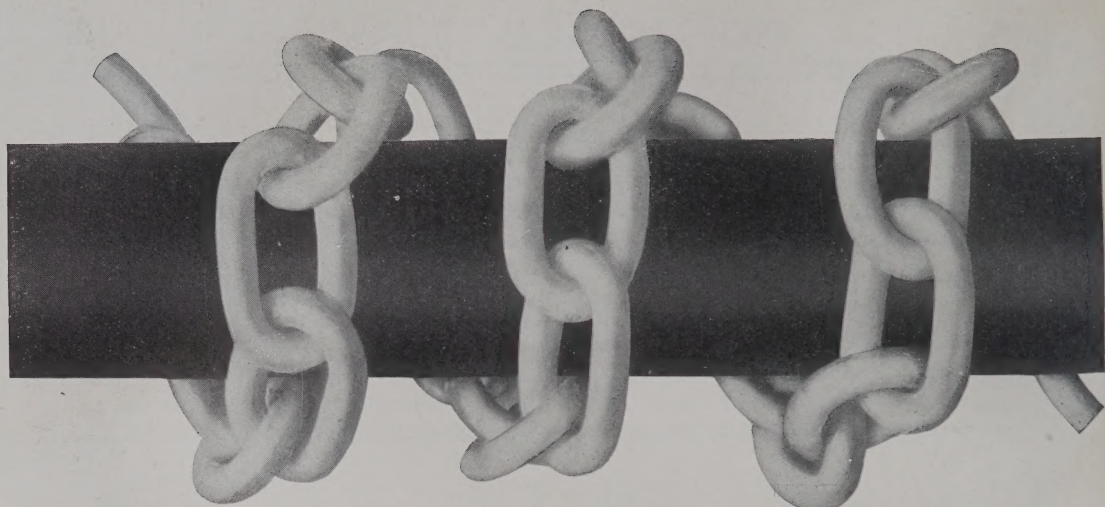
Used to permit closing of sliding doors; also used where two tracks cross, and for other necessary openings. When removed, automatically sets stop blocks, making it impossible for a carrier to run off the open ends of the track.

Standard length is fourteen inches, but made special any length to suit conditions.

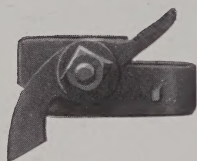
I-Beam Track

The James Track has many important advantages not possessed by other tracks.

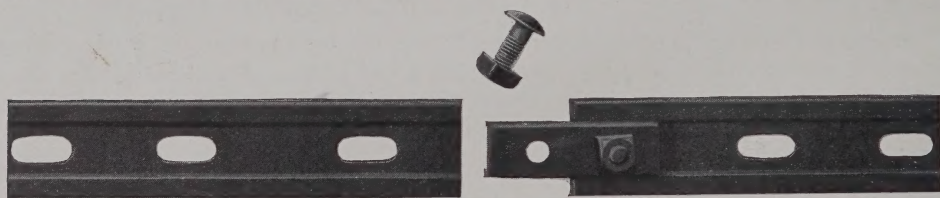
In the first place, it can be quickly and easily put up, even by inexperienced help—in fact, is easier to erect than any rod track. And once in place, it is there to stay.



Solid Steel Shaft and Lifting Chain—less than actual size.



James Removable Track Section.
Price, including brackets, \$1.00.
F. O. B. Ft. Atkinson, Wis.



Splice Block for James I-Beam Track.



James I-Beam Track—actual size.

There is nothing about it that will give, spread, loosen or get out of order: it is trouble proof—and will stand up under long years of heavy service.

No bolts or nuts are required for putting track and hangers together. The hangers “button” to the track and the nailing plates “button” to the hanger, the plates being nailed to the joists. If the barn is ceiled, ceiling plates with lag screws are used instead of nailing plates. The few simple instructions sent with each order, enable any one to get a first-class job, with the track perfectly levelled.

James I-Beam track saves the cost of special curves. The track may be quickly and easily bent to any curve while it is being put up in the barn—heat is not required to do the bending. As several curves are often necessary in a barn, and as these curves cost several dollars apiece when ordinary flange track is purchased, this saving is no small item; and is a very big item if the track is for a round barn.

Many litter carriers use a track that is not at all adapted to the litter carrier. A track that is flat has but little strength vertically. When used outside the barn, snow and sleet accumulates on the flat surface, blocking the carrier wheels. Before the carrier can be used outside, the snow or ice must be cleared from the track by melting or scraping it off—and this is no easy task, for the track is up high, out of convenient reach. Inside the barn, a flat track allows the dirt to accumulate.

The James Track is different. Its narrow tread affords no place for snow or sleet or dirt to collect—no sleet storm will put it out of use just when you need it most, in the disagreeable weather.

The narrow tread of the James track offers little resistance to the travellers; there being little friction surface, the carrier runs easily.

Track being one piece cannot spread and bind the tracker wheels.

The depth of the track and its heavy flanges at top and bottom make the James track stiff—it does not spring under heavy loads. This in part accounts for the ease with which big loads are handled on the James track. Any track without the necessary vertical strength will spring, making “low spots” in between hangers; and the carrier will push hard and jerkily.

The depth of the James track gives it long life because of the greater thickness of wearing surface; when the upper bead has worn thin, if it ever does, track can be turned edge for edge, the bottom bead forming new running surface. It will be giving satisfactory service many years after ordinary flat track has gone to the junk pile.

In fact, James track meets every condition required of a litter carrier equipment in any barn; it may be hung high or low, and run wherever there is room for the tub to pass.

The shape of the track is something like that of a railroad rail and for just the same reason. When the first railroad was constructed, a flat track was used, and soon abandoned for the present shape, in order to secure greater strength, longer wear and an even running surface.

It is heavy at the points of greatest strain. The weight on top puts the compression strain where the track is heavy; and the pulling strain where the track is just as strong. The compression strain and the pulling strain neutralize each other at the center of the track—less strength is required there, and hence that part of the track is made lighter. Every particle of metal helps to support the load, and the James track is therefore many times stronger than other types of track of equal weight.

Made of high carbon steel, same as a railroad rail; two inches deep; is easily put together with the channel steel splice bars and $\frac{7}{16}$ in. bolts—the track will not come apart and the joints will not give or sag. Holes in the track are three inches apart on centers.

PRICE: Track with splice bars and bolts, per foot, 12c. F. O. B. Ft. Atkinson, Wis.



Fig. 1.

Exact size of hanger for "Big Boy," "Mascot," Feed Car and Milk Can Carrier.



Fig. 3.



Fig. 2.



Fig. 4.



Fig. 5.



Fig. 6.

James Track Hangers

We call them the "button-on" hangers, because of the peculiar shape which does away with the use of bolts and nuts for attaching the hangers to the track.

In putting up the track, the hangers "button on"—you put the button of the hanger through the hole in the track, slip the nailing plate through hole in the hanger, turn to position desired and fasten to joist or ceiling. (See Figs. 1, 2 and 3.)

Nailing plates (Fig. 3) or nailing plates with extension bolts (Fig. 5) are used for attaching to joists. If the barn is ceiled, ceiling plates with extension bolts (Fig. 4) of proper length are used with the hangers.

For the "Big Boy," the Feed Car and the Milk Can Carrier, only one style of hanger is required. Various lengths of extension bolts make it easy to drop the track any distance from the ceiling. And with either nailing plates or ceiling plates, it is a simple matter to level the track perfectly. No bolts being used in attaching hangers to the track, there are no nuts to rattle loose or come off—the track is held firmly.

STOP BLOCK: There is no extra cost for special stop blocks, none being required. Any hanger inserted on the opposite side of the track from the other hangers acts as a stop block, as well as supporting the track. The stop block, being "buttoned on," cannot work loose—making it impossible for the carrier to run off the end of the track.

Made of best malleable iron—they will not break.

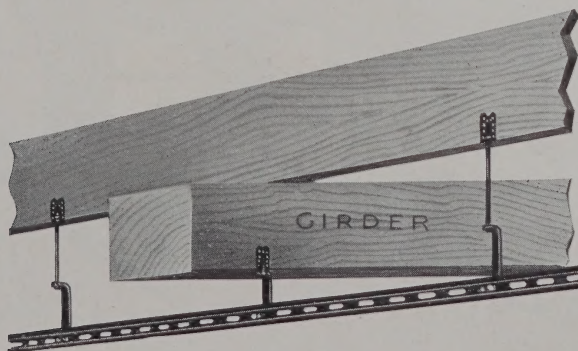
Hangers should be used not more than 36 inches apart.

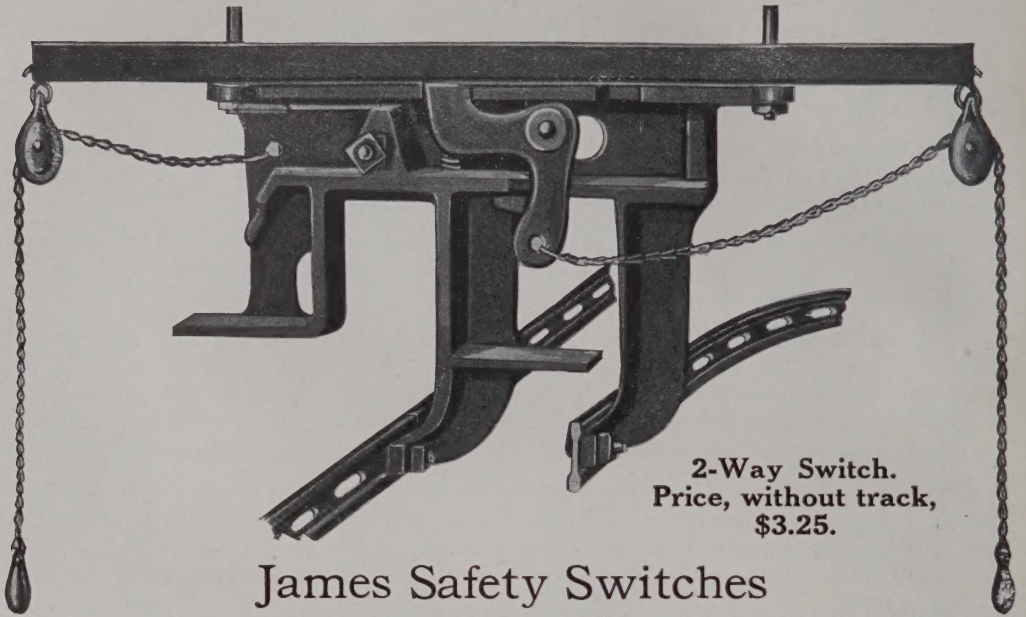
PRICES OF HANGERS

	PER DOZEN
With nailing plate (Fig. 1), including nails	\$1.68
With nailing plate, nails and extension bolt (Fig. 5) or ceiling plate, lag screws and extension bolt (Fig. 4):	
To clear a 2-inch girder or other obstruction	\$1.81
To clear a 4-inch girder or other obstruction	1.95
To clear a 6-inch girder or other obstruction	2.15
To clear a 8-inch girder or other obstruction	2.35
To clear a 10-inch girder or other obstruction	2.55
To clear a 12-inch girder or other obstruction	2.62
To clear a 14-inch girder or other obstruction	2.75
To clear a 16-inch girder or other obstruction	2.88
To clear a 18-inch girder or other obstruction	3.05

If for Combination Carrier, be sure to specify "Combination" hangers.

Prices are F. O. B. Ft. Atkinson, Wis.





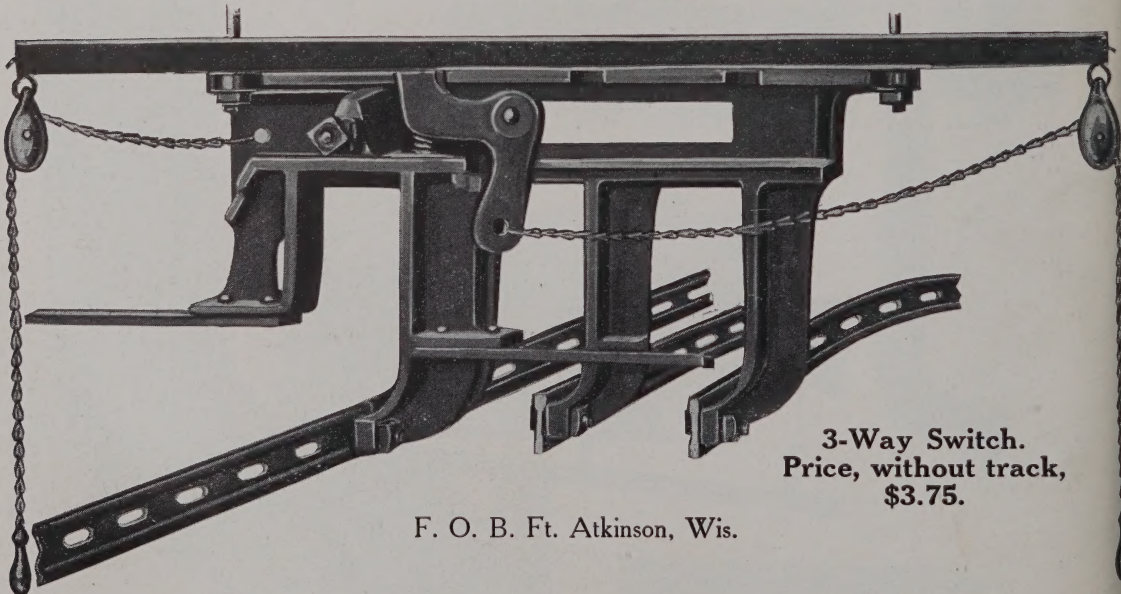
2-Way Switch.
Price, without track,
\$3.25.

James Safety Switches

Anyone who has had experience with the unsatisfactory devices used in the past for transferring a carrier from one section of track to another section, will appreciate the James Safety Switch.

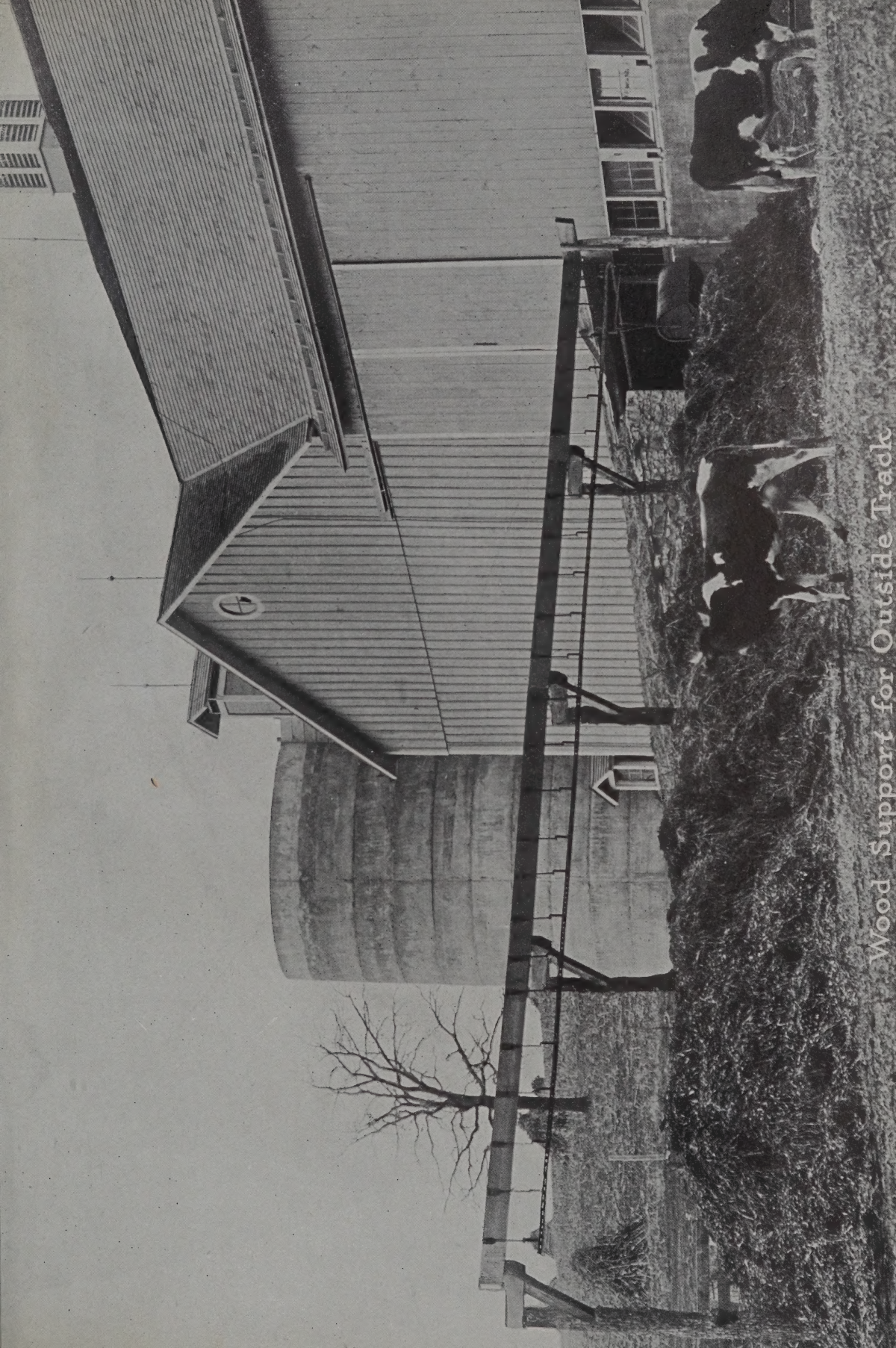
It can be operated conveniently from below, no matter how high the track is hung; a pull on the chain unlocks the switch and transfers to the other track, at the same time setting stop blocks across the open ends; there is never any possibility of a James Carrier running off the track, for a projection on the switch arm blocks the open tracks. When the pull on the chain is released, the switch automatically locks in place.

The James Safety Switch is the simplest, surest and easiest in operation; being constructed of best iron, it is strong and durable. Switches are reversible, and either two-way or three-way switches are furnished; both operate in the same manner.



3-Way Switch.
Price, without track,
\$3.75.

F. O. B. Ft. Atkinson, Wis.



Wood Support for Outside Track



Steel Construction for Supporting
James Track Outside

Supports for James Track Outside the Barn

STEEL SUPPORT: As shown on page 134. Constructed of $2\frac{3}{8}$ -in. O. D. steel piping, galvanized, with malleable fittings and $\frac{1}{2}$ -in. bolts. The uprights in each pair of posts are five feet apart, on centers set in concrete, upper corners heavily braced. Prices quoted on application. Very satisfactory track support.

WOOD SUPPORT: A wood support to serve the same purpose can be built as shown on page 133.

Supports Alongside the Barn

Sometimes it happens that it is necessary to carry the I-Beam track along the outside of the barn.

If a Combination Carrier is being used, it may not be possible to run the rod track out into the yard directly from the door; in such a case the track can be supported from the side of the barn, carrying the I-Beam track to a point from which the rod track can be run out as desired.

Or in some barns where the rows of cows run crosswise, it may be desirable to bring the track out of one door and in to another in order to reach certain parts of the stable—especially if it happens that alleys are too narrow to permit the passage of the carrier.

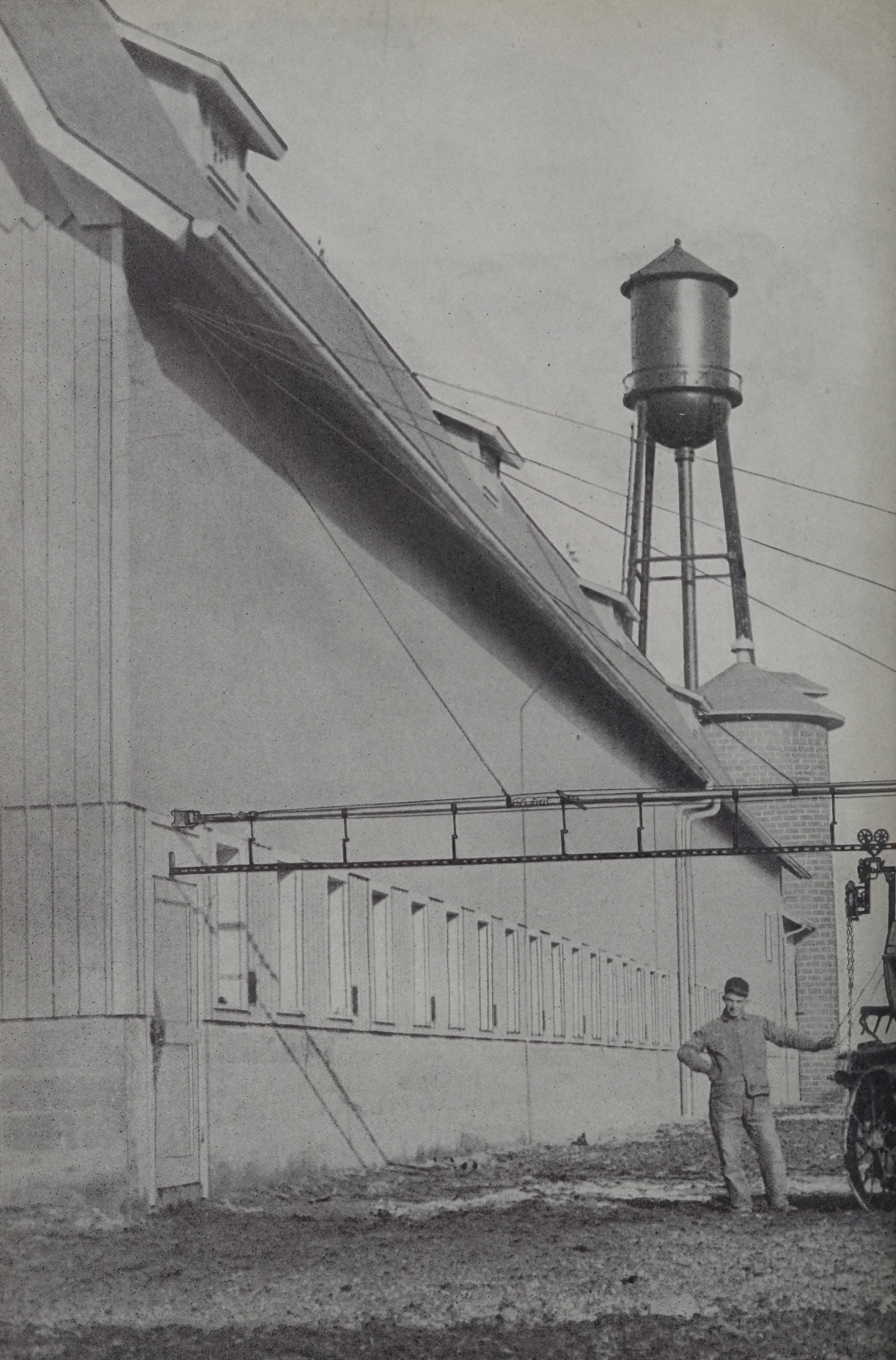
Track supported from the side of the barn may also be used in cases where a swinging crane cannot be extended from the door itself, some other building, for instance, being in the way. It is easy to carry the I-Beam track to a point from which a crane may be swung.

This track support is furnished in two styles.

STEEL SUPPORT: Constructed of $2\frac{3}{8}$ -in. O. D. galvanized steel piping, the brackets which hold the supporting rods being fastened to the barn with $\frac{3}{8}$ -in. lag screws. The supporting rods are $\frac{1}{2}$ -in. diameter. Struts are $2\frac{3}{8}$ -in. O. D. galvanized steel piping, fastened to the barn with malleable flanges and $\frac{1}{2}$ -in. lag screws.

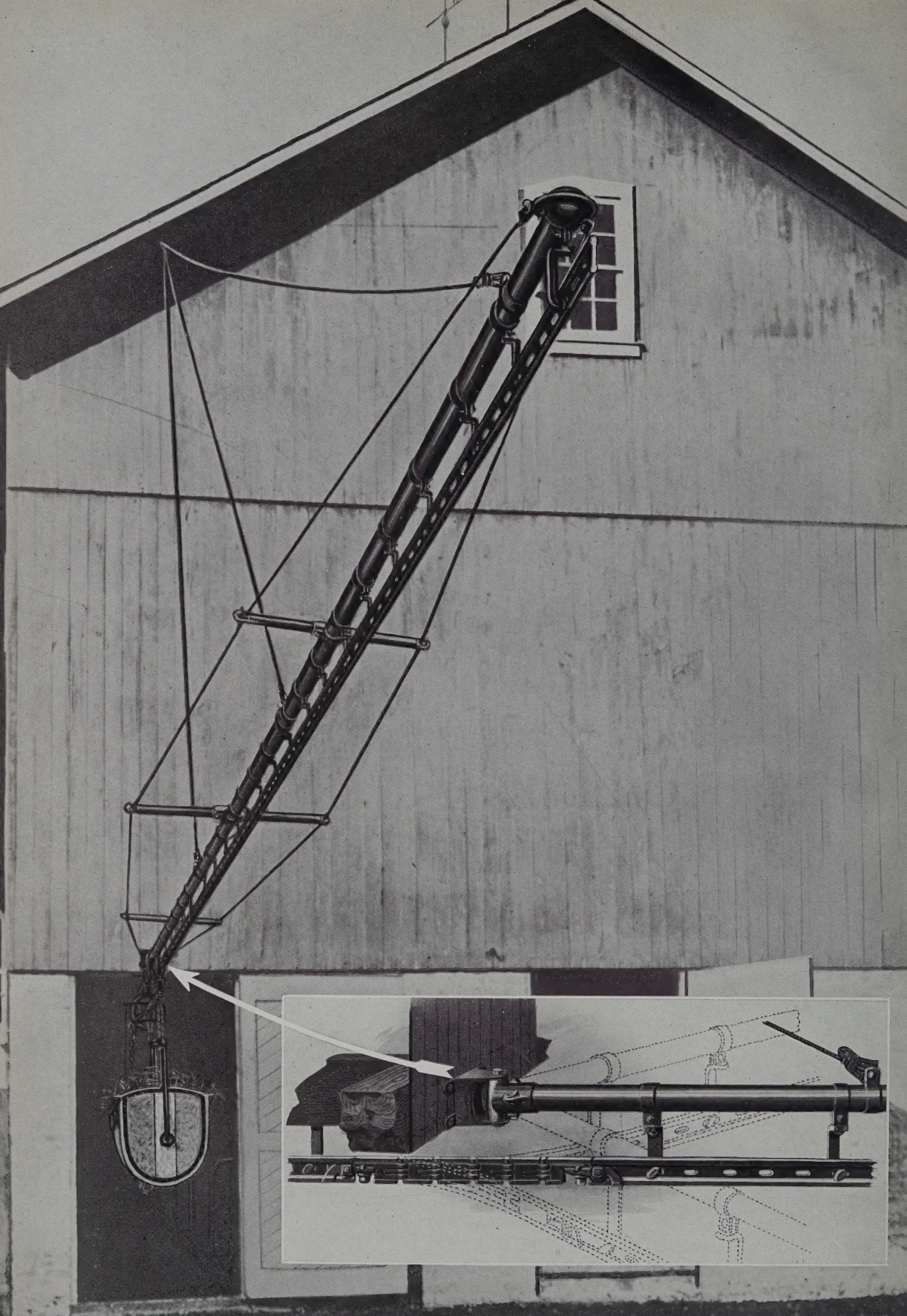
No threaded fittings are used, the pipe frame being put together with clamps of best malleable. The entire structure can be erected with no tools excepting a hammer and a wrench. Blue prints showing details, and prices furnished on application.

WOOD SUPPORT: A similar structure can be built of wood, in which case we furnish only the supporting rods of $\frac{1}{2}$ in. diameter, with brackets and lag screws for attaching to barn and the wood frame.





The James Swinging Crane



James Swinging Crane

James Swinging Steel Crane

The James swinging steel crane is the most satisfactory method of supporting the track outside the barn. It leaves the yard entirely clear, there being no supporting posts to interfere with the use of the yard, or to cause injury to horses or cattle; nor is there any lumber to rot and break. It keeps the yard next to the barn free from manure, because when not convenient to dump on to spreader or wagon, carrier can be dumped on an emergency pile some distance from the barn.

The carrier track can be extended beyond the swinging crane, if desired, by the use of the steel support shown on page 134, or the wood support shown on page 133.

The carrier will pass over the flexible hinge readily, even when the crane is swung as much as 30 or 35 degrees to either side of a line straight out from the door; and hence makes possible a dumping area eight or ten times greater than the post supported track of the same length, should it be necessary to allow manure to accumulate.

When necessary to drive close to the barn with a load of hay, the crane may be swung against the side of the building, either to the right or to the left, where it is out of the way.

The length of crane that may be used, if suspended from the barn itself, is dependent on the height of the building. It should usually not exceed two and a half times the distance from the top of the door to the plate on which the rafters rest.

For instance, if the distance from the top of the door to the plate on which the rafters rest is 14 feet, the crane should not exceed 35 feet; if the corner post is 16 feet, a 40-ft. crane may be used. In but very few cases would we recommend a crane over 40 feet in length.

By erecting the proper supports, it is usually possible to secure the advantage of the swinging crane, even though the building be low or other conditions apparently prevent. If you want to use a crane and do not know how to support it on your barn, write us and our Service Department will be glad to help you solve the problem.

The track inside the barn and the track supported from the crane are connected by the removable flexible hinge shown on page 138.

Specifications

Steel piping, galvanized, $2\frac{3}{8}$ -in. O. D., connected by heavy malleable splice clamps; truss braces of $1\frac{5}{8}$ -in. O. D. steel piping, galvanized. Side brace cables $\frac{5}{16}$ in. in diameter with $\frac{1}{2}$ in. turnbuckles; size of guy cables vary according to length of crane; with the 40-ft. crane four $\frac{5}{16}$ -in. and one $\frac{3}{8}$ -in. cables are furnished.

The flexible hinge is of best malleable with steel pins, and flat tempered springs.

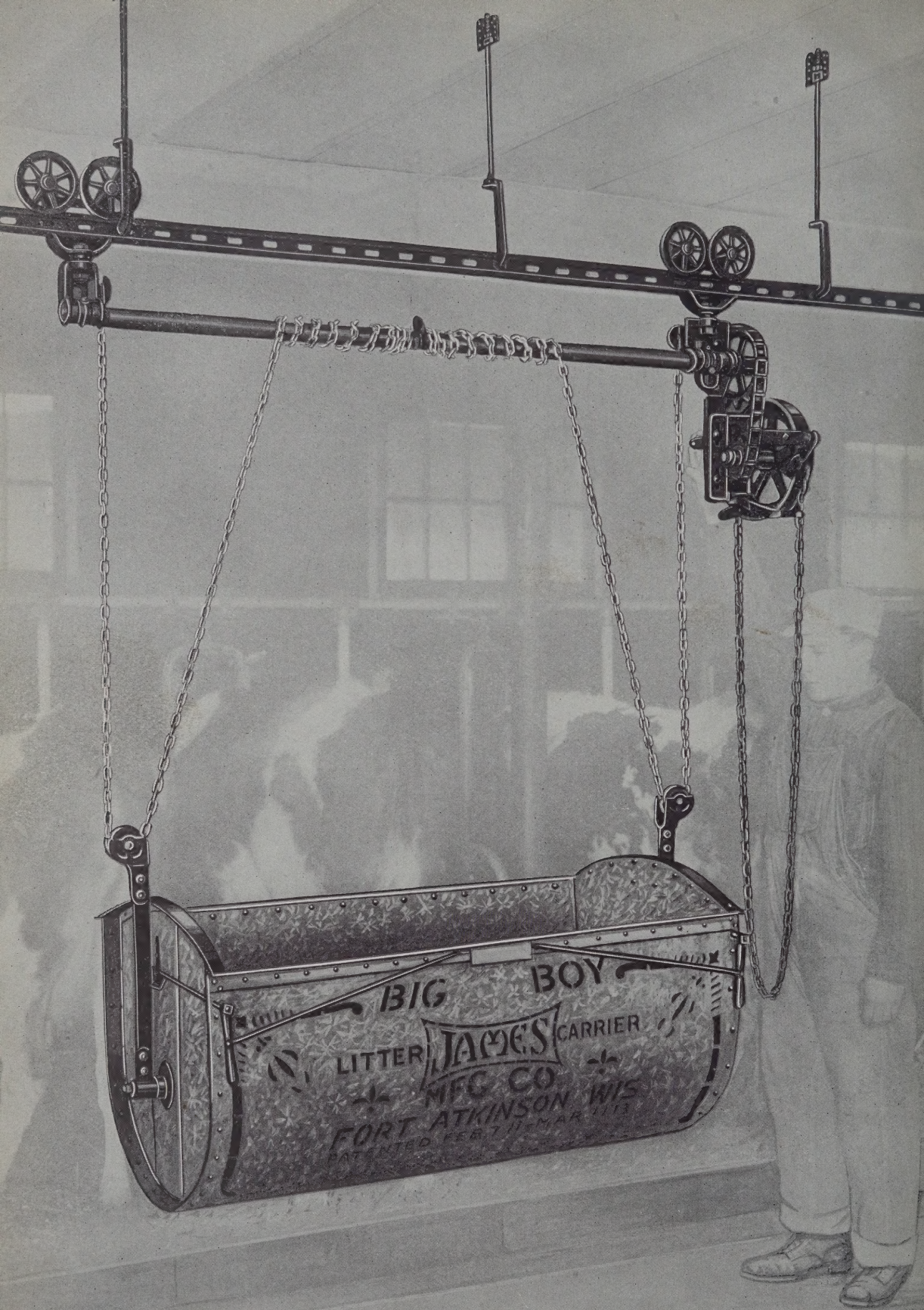
Hook bolt, special design with clevis to prevent cables from unhooking, for attaching upper end of guy cables to barn, one inch thick, with iron washer.

Price, James Swinging Steel Crane, including track, malleable hangers and clips, cable, removable flexible hinge and all necessary fittings for hanging, complete.

30-ft., each.....	\$24.00
35-ft., each.....	27.00
40-ft., each.....	30.00

F. O. B. Ft. Atkinson, Wis.

Prices on shorter cranes furnished on application.



The "Big Boy" Litter Carrier

(PATENTED)

SPECIFICATIONS

TUB: Constructed of eighteen-gauge galvanized sheet steel, built on a framework of galvanized angle iron; angle iron at side edges being $1\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{8}$ in.; at the ends $\frac{7}{8} \times 1\frac{3}{8} \times \frac{1}{8}$ in.; end of tub reinforced with galvanized steel plate $4\frac{1}{2} \times \frac{1}{8}$ in. Well riveted, all rivets galvanized and are $\frac{3}{16}$ in., except corner rivets, which are $\frac{1}{4}$ in. Gudgeon support is riveted to the two thicknesses of steel on end of tub. Tub is self-cleaning. For complete information see page 119.

PERFECT CONTROL CLUTCH AND BRAKE: Of malleable and bar steel. For explanation of operation see pages 122-3.

HOIST: Chain and sprocket type. Made of best iron and steel. The frame carrying the lower sprocket is adjustable to take up the slack, thus making it possible to overcome any wear. So geared as to make possible the raising of heavy loads in the shortest time without undue effort. (See page 123.)

CHAIN GUIDES: Malleable. Prevent hand chain running off the hoist wheel.

SHAFT: Of $1\frac{1}{4}$ -in. cold rolled solid steel shafting, same as used in factories for line shafting. (Page 127.)

LIFTING CHAIN: Heavy straight link chain, tested for five times the load it will have to carry. Three point suspension; in winding up forms an open spiral preventing rubbing and wear. (Page 127.)

TRACKER WHEELS: Made of gray iron; $4\frac{3}{4}$ in. in diameter, mounted in swiveled tracker wheel frames. Travelers arranged tandem. Tracker wheel axle of steel with oil pocket; journal machined and surfaced. (See pages 124-5.)

TRACKER WHEEL FRAME: So constructed that wheels cannot jump the track. May be removed only by hand. (Pages 124-5.)

LATCH AND TRIP: Latches at each end of tub lock and unlock simultaneously. Protected against clogging with manure. Latch trip operated from either end.

BAIL HANGERS: Heavy flat steel bars $\frac{5}{16} \times 1\frac{1}{2}$ in., edgewise to the tub. Malleable fittings and sheave. (See page 119.)

CAPACITY: Tub No. 4 is 48 in. long, 26 in. deep, 27 in. wide, and measures approximately 14 bushels; tub No. 2 is 48 in. long, 24 in. deep, 27 in. wide, and measures approximately 13 bushels.

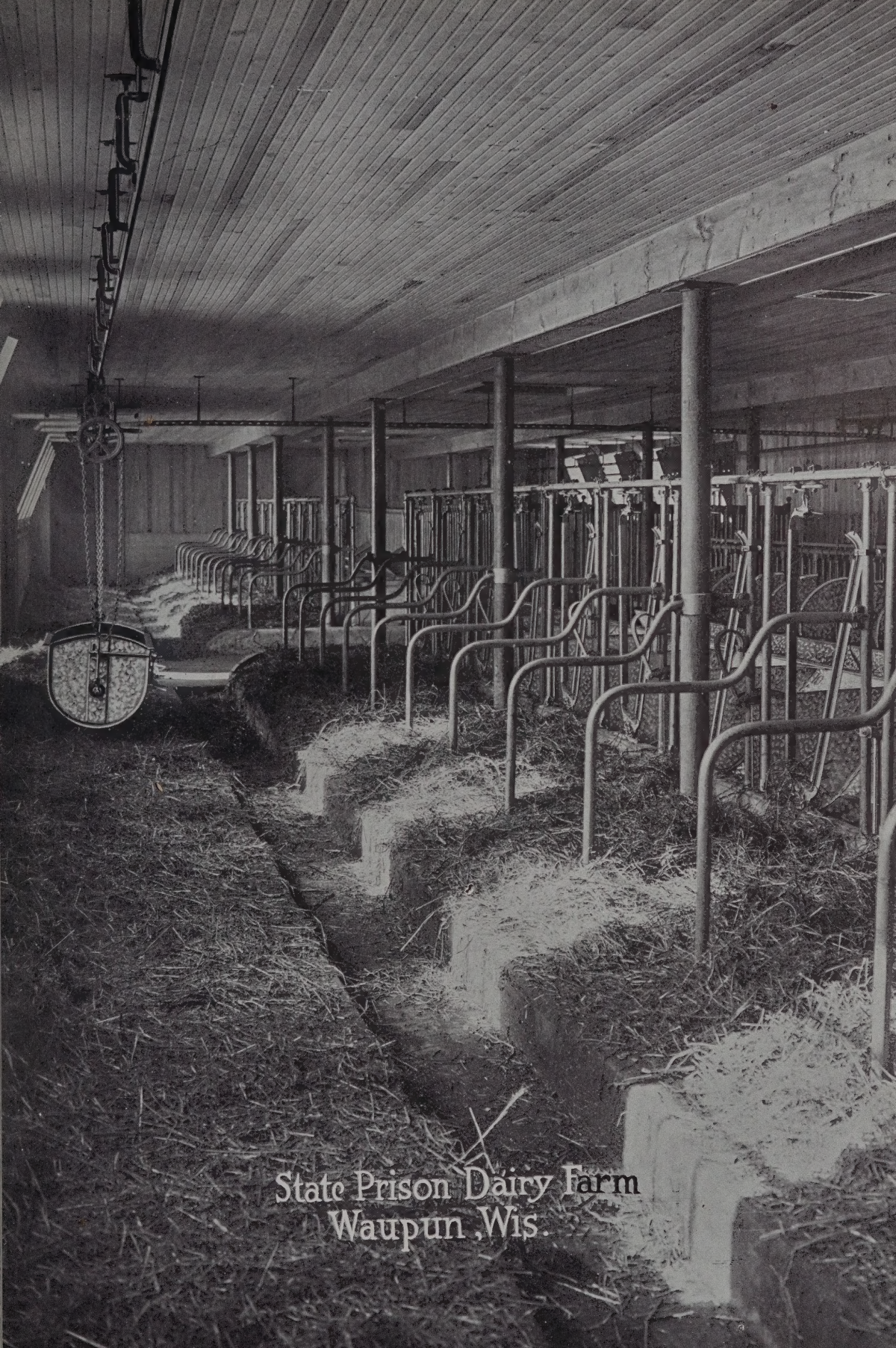
WEIGHT: With tub No. 4 approximately 225 pounds; with tub No. 2 approximately 200 pounds.

PRICE: "Big Boy" Litter Carrier complete, as shown on page 140, without track or hangers (for which see pages 128 to 131), with No. 4 tub, \$26.50.

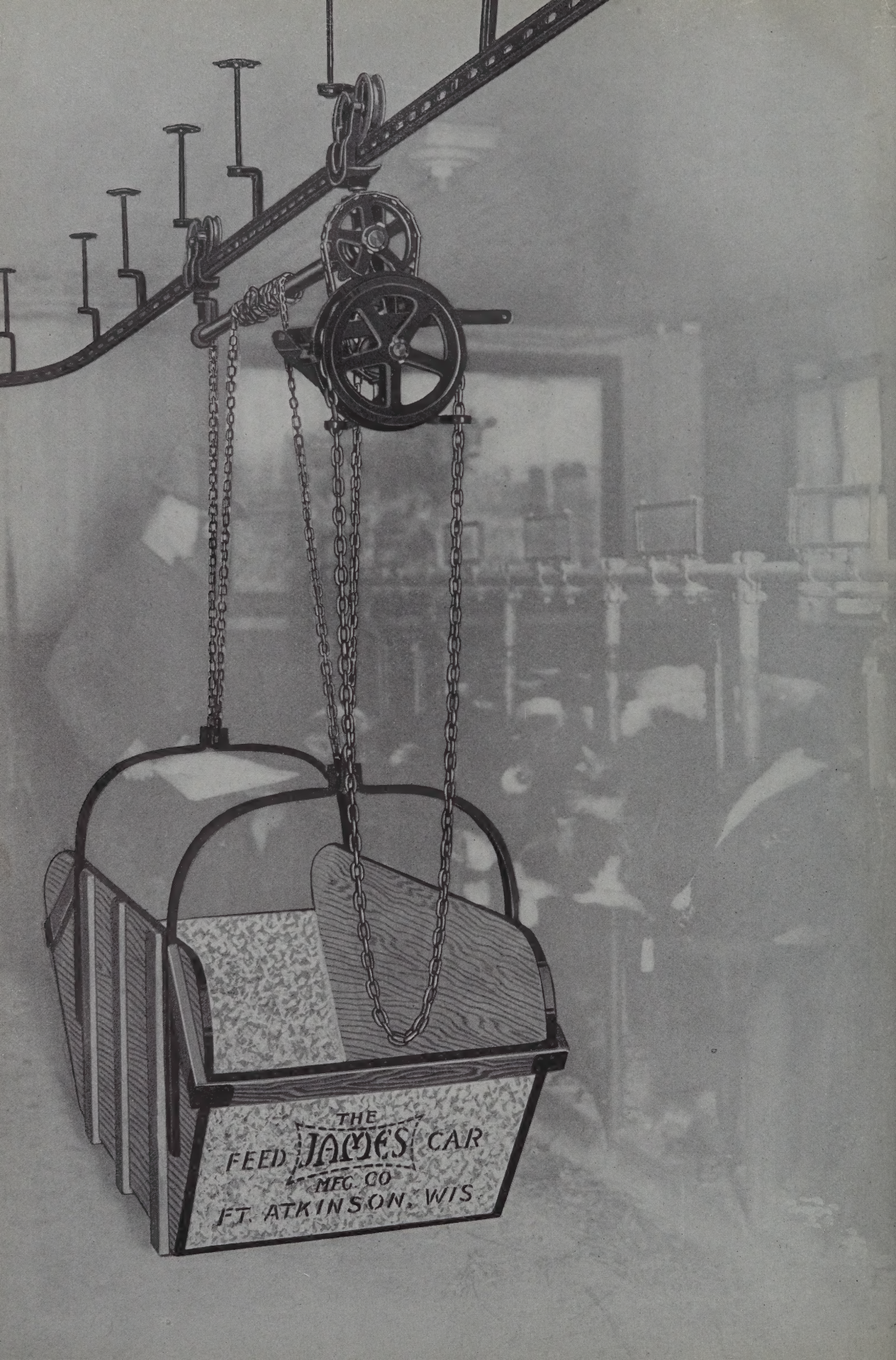
With No. 2 tub, \$24.00. F. O. B. Ft. Atkinson, Wis.



Sinnissippi Farm, Oregon, Ill.
Col. F.O. Lowden, Owner



State Prison Dairy Farm
Waupun, Wis.



THE
FEED JAMES CAR
MEC. CO
FT. ATKINSON, WIS

The James Feed Car

(PATENTED)

SPECIFICATIONS

TUB: Constructed of selected lumber; bottom and ends 20-gauge galvanized steel, the design making it easy to shovel. Corners bound with corner iron.

SIZE: Extreme length 68 inches, width 26 inches, height 24 inches.

PERFECT CONTROL CLUTCH AND BRAKE: Of malleable and bar steel. For explanation of operation see pages 122-3.

HOIST: Chain and sprocket type. Made of the best iron and steel. The frame carrying the lower sprocket is adjustable to take up the slack, thus making it possible to overcome any wear. So geared as to make possible the raising of heavy loads in the shortest time without undue effort. (See pages 122-3.)

CHAIN GUIDES: Malleable. Prevent hand chain running off the hoist wheel.

SHAFT: Of 1¼-in. cold rolled solid steel shafting, same as used in factories for line shafting. (Page 127.)

LIFTING CHAIN: Heavy straight link chain, tested for five times the load it will have to carry. Three point suspension; in winding up forms an open spiral preventing rubbing and wear. (Page 127.)

TRACKER WHEELS: Made of gray iron; 4¾ in. in diameter, mounted in swiveled tracker wheel frames. Travelers arranged tandem. Tracker wheel axle of steel with oil pocket; journal machined and surfaced. (See pages 124-5.)

TRACKER WHEEL FRAME: So constructed that wheels cannot jump the track. May be removed only by hand. (Page 124-5.)

BAIL: Heavy channel steel. Extends nearly to bottom of tub. So shaped as to permit the greatest freedom when shoveling.

CAPACITY: Approximately 16 bushels.

WEIGHT: 250 pounds.

PRICE: James Feed Car complete, as shown on page 144, without track or hangers, (for which see pages 128-131), \$23.50. F. O. B. Ft. Atkinson, Wis.



James Milk Can Carrier

Milk Can Carrier

(PATENTED)

Where the James I-Beam Track is already installed in the barn, the Milk Can Carrier outfit costs but very little, the only additional cost being for the carrier itself with perhaps a little additional track to reach the Milk House.

The James Milk Can Carrier is a distinct improvement over the platform carrier from which cans not only slip off in going around a curve but with which it is necessary to lift cans on and off.

The James Carrier may be lowered to the floor and the hooks quickly released from the can handles. The friction clutch makes it possible to lower and hold the cans within an inch of the floor, preventing them from coming in contact with any litter and keeping the cans clean.

Specifications

PERFECT CONTROL CLUTCH AND BRAKE: Of malleable and bar steel.
For explanation of operation see pages 122-3.

HOIST: Because of the lighter load handled by the Milk Can Carrier the direct type hoist is used. (See page 146.)

CHAIN GUIDES: Malleable. Prevent hand chain running off the hoist wheel.

SHAFT: Of 1¼-in. cold rolled solid steel shafting, same as used in factories for line shafting. (Page 127.)

LIFTING CHAIN: Heavy straight link chain, tested for five times the load it will have to carry. Three point suspension; in winding up forms an open spiral preventing rubbing and wear. (Page 127.)

TRACKER WHEELS: Made of gray iron; 4¾ in. in diameter, mounted in swiveled tracker wheel frames. Travelers arranged tandem. Tracker wheel axle of steel with oil pocket; journal machined and surfaced. (See pages 124-5.)

TRACKER WHEEL FRAME: So constructed that wheels cannot jump the track.
May be removed only by hand. (Pages 124-5.)

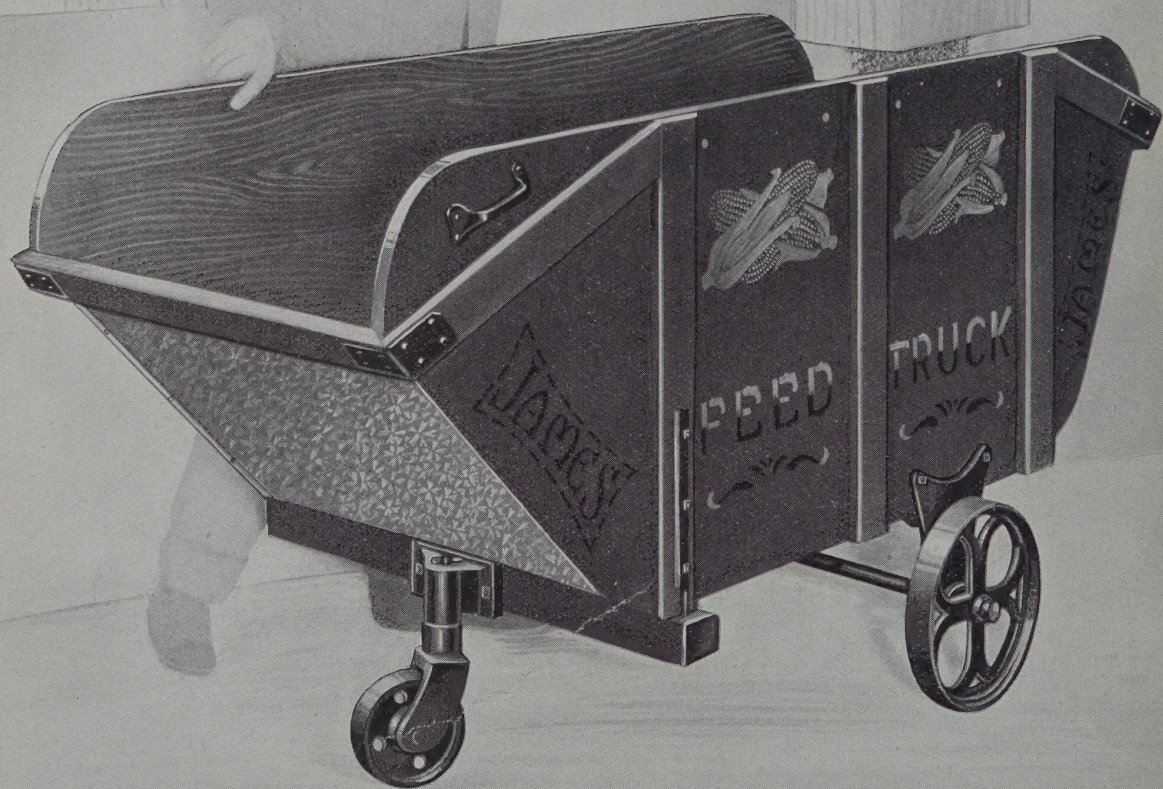
Instead of a suspended tub or platform the milk cans are suspended from a carbon steel pipe, fitted with a sheave on each end, through which runs the lifting chains that wind over the steel shaft. Suspended from the pipe are steel straps with hooks which grapple the milk can handles. Sufficient distance between these supports is provided to admit the use of a strainer; the cans need not be detached, from the time they are taken empty from the milk-house until they are returned.

CAPACITY: Will handle either 1, 2 or 3 milk cans.

WEIGHT: Approximately 110 pounds.

PRICE: James Milk Can Carrier complete, as shown on page 146, without cans, and without track or hangers (for which see pages 128-131), \$15.00 F. O. B. Ft. Atkinson, Wis.

FEED CHUTE



The James Feed Trucks

SPECIFICATIONS

16 Bushel Truck

BOX: Constructed of clear selected lumber, strongly reinforced by side cleats. Bottom is No. 18-gauge galvanized sheet steel. Extreme length 68 inches, width 26 inches, height 24 inches. Ends slanting to make shoveling easy. The weight of the feed box is equally balanced on the wheels so that when filled the truck can be run along any reasonably smooth floor or walk with but little effort.

WHEELS: Arrangement of the wheels is such that the truck can be turned around in a space 75 inches in diameter.

MAIN WHEELS: 12 inches in diameter, 2-inch face. End wheel anti-friction swivel, 6-inch diameter, 2-inch face.

AXLE: 1-inch solid cold rolled steel, with set collars; axle and wheels run freely. Extreme length of shaft 32 inches.

CAPACITY: 16 bushels. **WEIGHT:** Approximately 200 pounds.

PRICE: Each \$15.00. F. O. B. Ft. Atkinson, Wis.

Can be made special in other widths to meet conditions, if alleys or doors are too narrow.

25 Bushel Truck

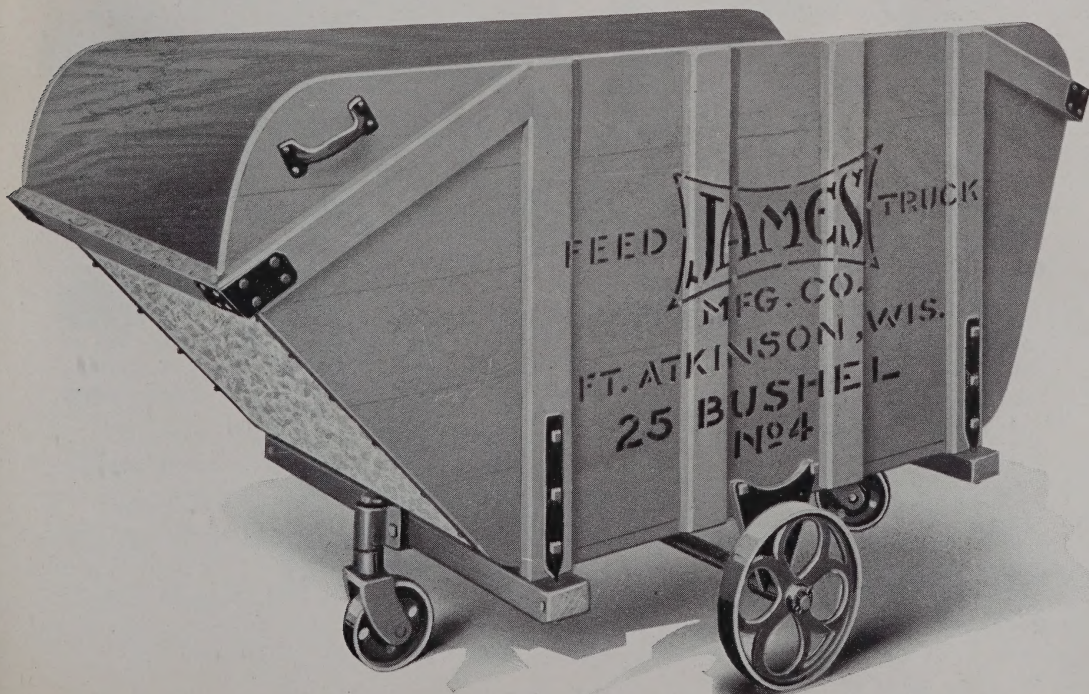
The same construction throughout as the 16 bushel, excepting as follows:

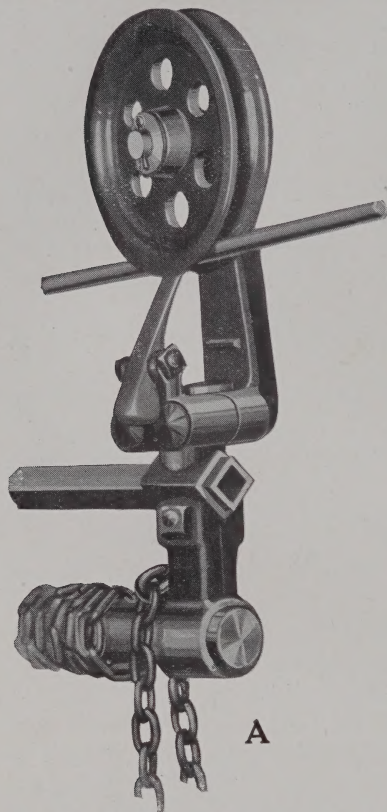
BOX: Extreme length 71 in., width 30 in., height 30 in.

WHEELS: *4-wheel style:* Furnished only for level floors. Four cleats on side of box. *3-wheel style:* Three wheels, arranged as on the 16 bushel; furnished if there is an incline over which the truck must pass.

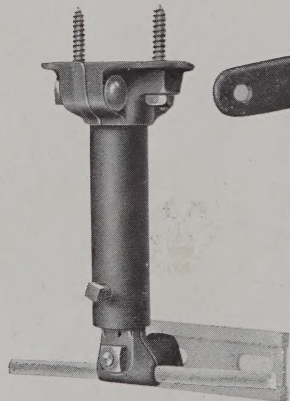
CAPACITY: 25 bushels. Extreme length of shaft 38 inches. Truck will turn in a space 80 inches in diameter.

WEIGHT: Approximately 265 pounds. **PRICE:** Each \$22.50. F. O. B. Ft. Atkinson, Wis.



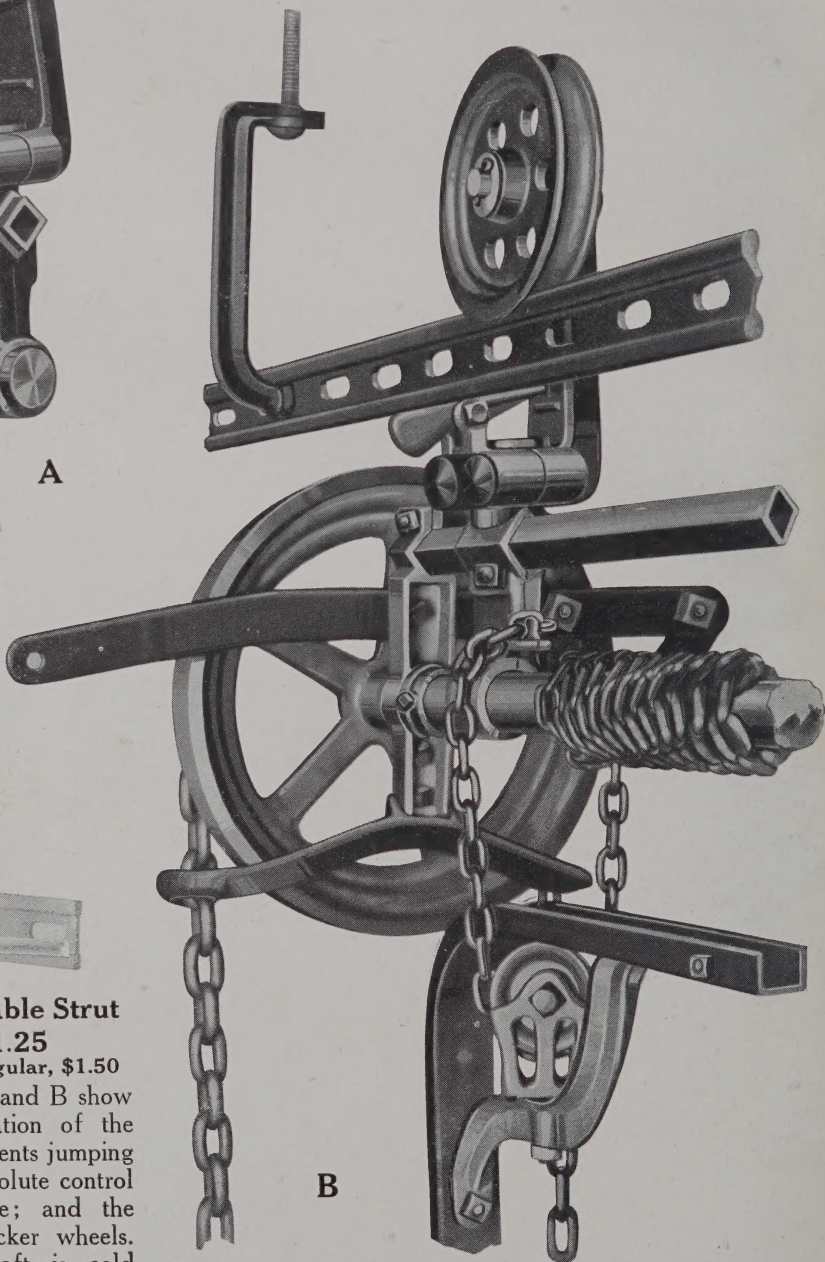


A

**Adjustable Cable Strut****Price, \$1.25**

Any size over regular, \$1.50

Illustrations A and B show clearly the operation of the keeper which prevents jumping the track; the absolute control clutch and brake; and the easy running tracker wheels. The winding shaft is cold rolled, solid steel shafing.

**Splice Connection. Price, \$1.25.**

B

The James Combination Carrier

For I-Beam and Rod Track

This carrier has back of it all the quality, reputation and experience that have made James Carriers and James Equipment famous and successful.

For the smaller barns, it is one of the most valuable and most sensible labor savers ever put on the market, and is proving a big winner. It is not, however, adapted to the larger barns, say fifteen head of stock or more, because the capacity of the tub is limited by the strength of the anchorage of the rod track.

The James Combination Carrier has all the advantages of the I-Beam track inside the barn—the celebrated James track that can be bent to any curve without the use of heat, doing away with the expense for special curves; the “button-on” hangers that make the outfit easy to erect, a tub that can be quickly dropped to the floor for loading, and that “stays put” on the track while being filled—track can’t sag, hence the carrier moves only when you push it; and other features that make barn cleaning easy.

This carrier also has all the advantages of the rod track outside the barn. You can stand at the barn door, give the carrier a shove—it runs out, dumps at the desired point and returns automatically to the barn. Saves walking through the wet yard and through the snow.

The tub dumps to either side, giving you more dumping space and making it more convenient to dump into wagon or spreader. Latches at the ends of the tub lock and unlock simultaneously; work surely and easily; and are protected so they will not clog with manure.

The trip block which dumps the tub can be locked to the track at any desired point. When the trip strikes this block, the tub dumps to whichever side is loaded the heavier. An ingenious device makes the trip positive, so that dumping is certain.

Carrier returns automatically to the barn when empty.

The long life tub is the same in materials and construction as the “Big Boy” carrier tubs, described on page 119, the only difference being in size.

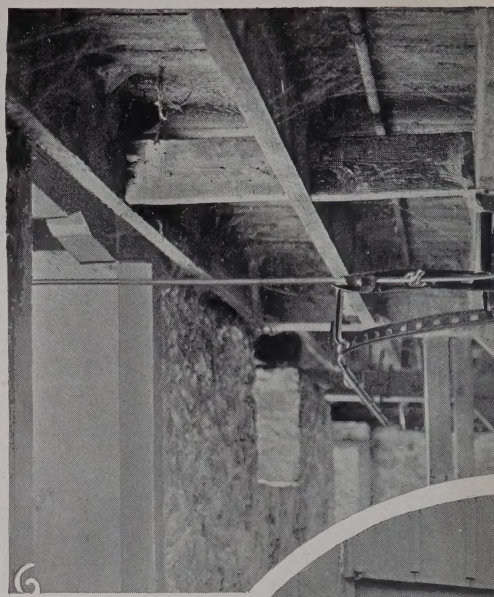
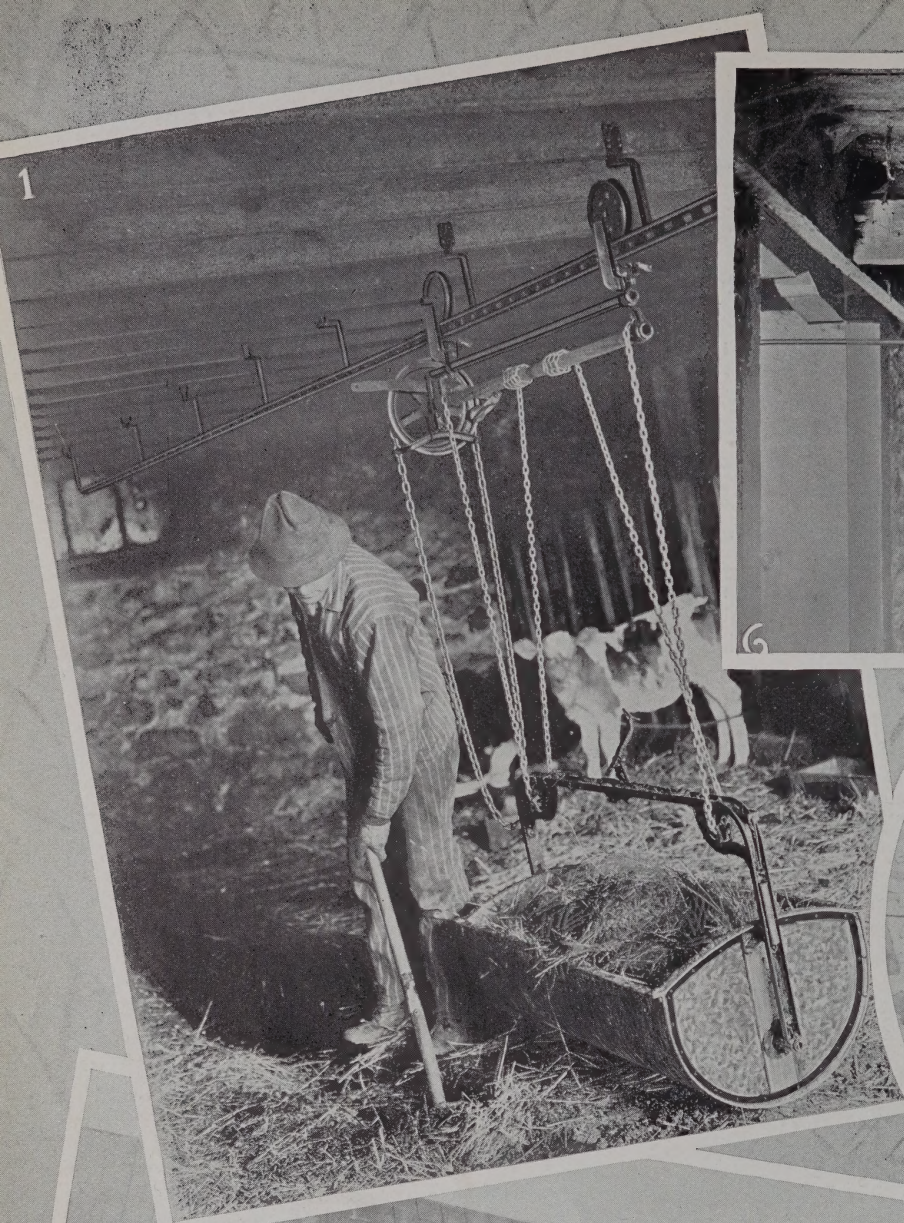
Heavy straight link lifting chain is used, this being strongest and best adapted to the purpose. It is attached to the center of the cold rolled, solid steel shaft, so that in winding up it forms a very open spiral, preventing rubbing and wear. No cable to wear out and break.

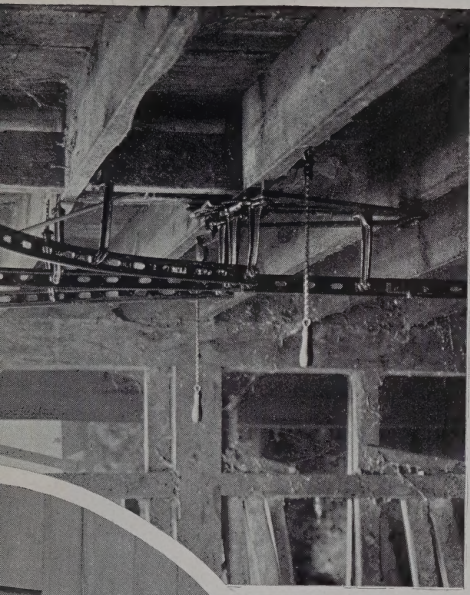
The carrier is very easy running because of the narrow tread on both the I-Beam track and the rod track, and because each tracker wheel contains ten long, cold rolled steel bearings, making it almost frictionless.

Whether the carrier is on the rod track or on the I-Beam track, or passing from one to the other, it can’t jump off. The ingenious keeper makes that impossible. There is but one way to get it off the track and that is by its being deliberately lifted off by the human hand.

The direct hoist is used; so geared as to raise the load in the shortest time possible without undue effort.

The Absolute Control Clutch and Brake described on pages 122-3 is a most important part of the Combination Carrier. Turn back to that page and learn its advantages.





Switches for Combination Carrier

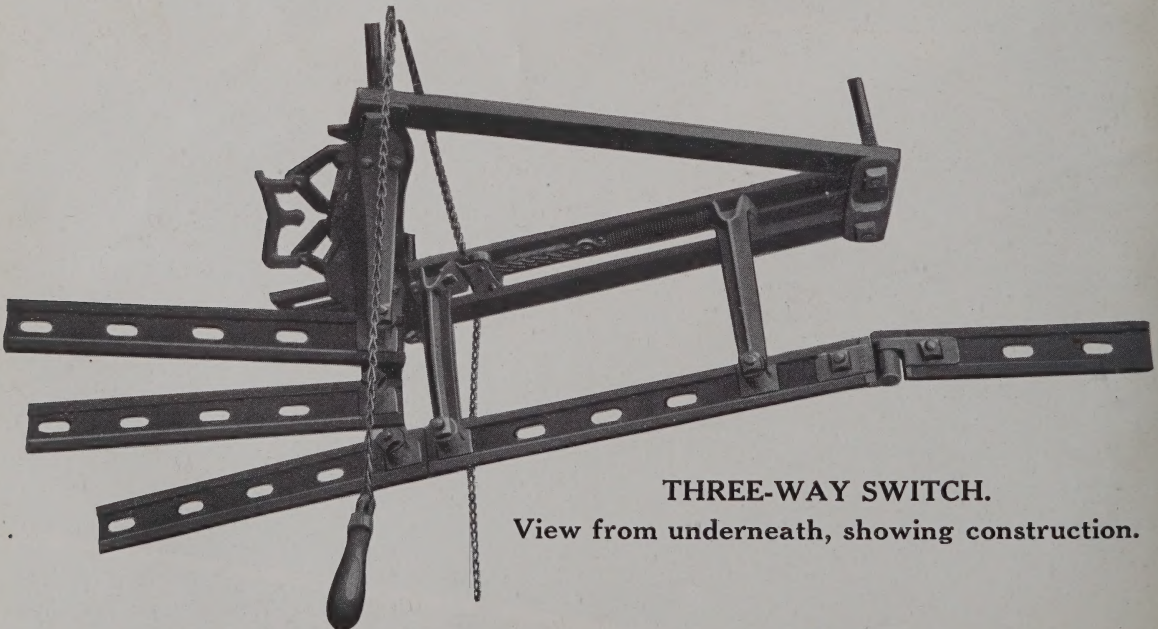
Price: Three-Way, \$3.75
Two-Way, 3.25

F. O. B. Ft. Atkinson, Wis.

The James Safety Switches for the Combination Track Carriers can be operated from below with one hand, no matter how high the track is hung; a pull on the chain unlocks the switch and transfers to the next track, at the same time setting stop blocks across the open ends. There is no possibility of a James Carrier running off the track.

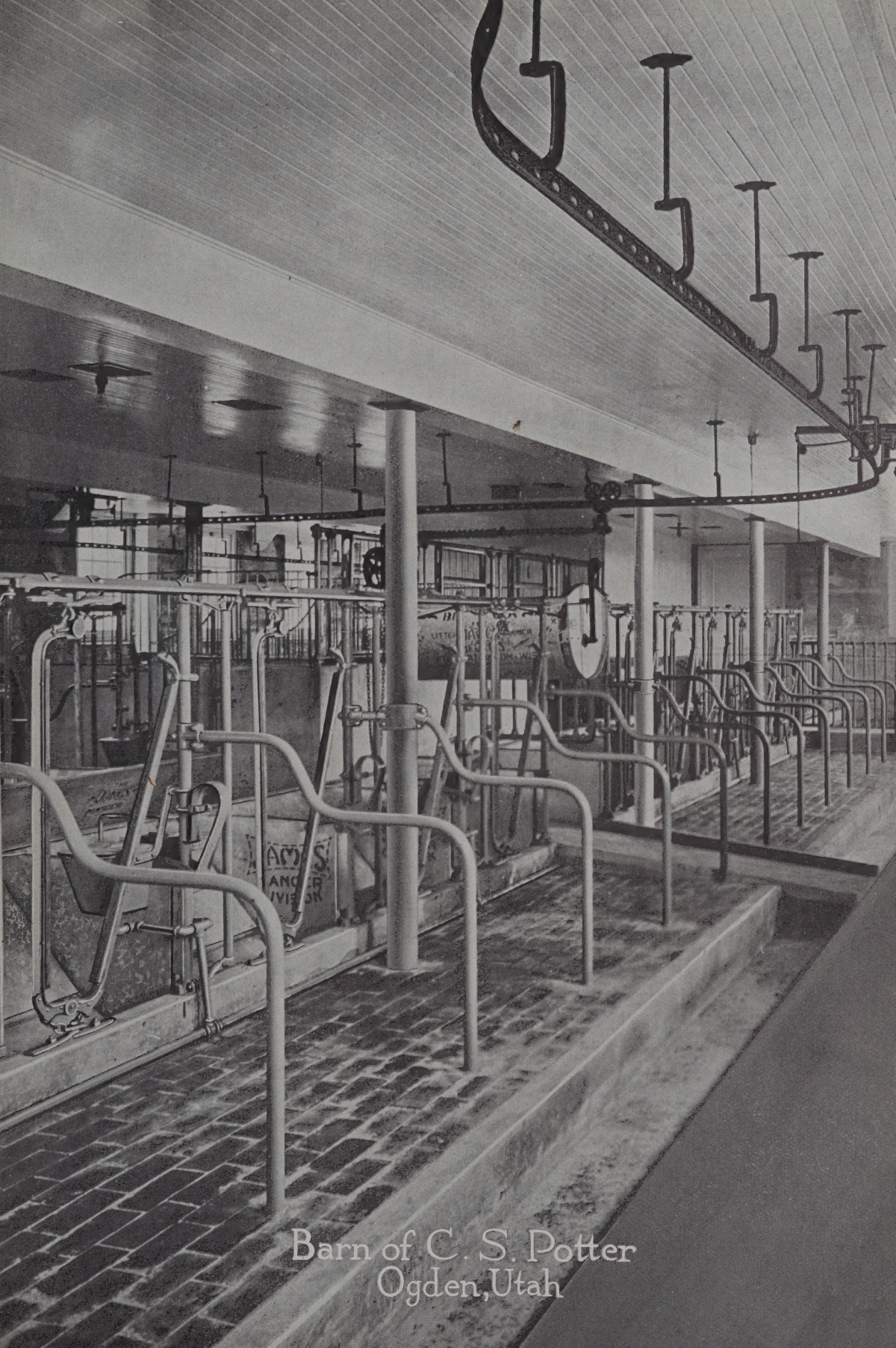
Simple, sure and easy in operation; being constructed of the best iron, are strong and durable.

Either Two-way or Three-way switches are furnished, both operating in the same manner.

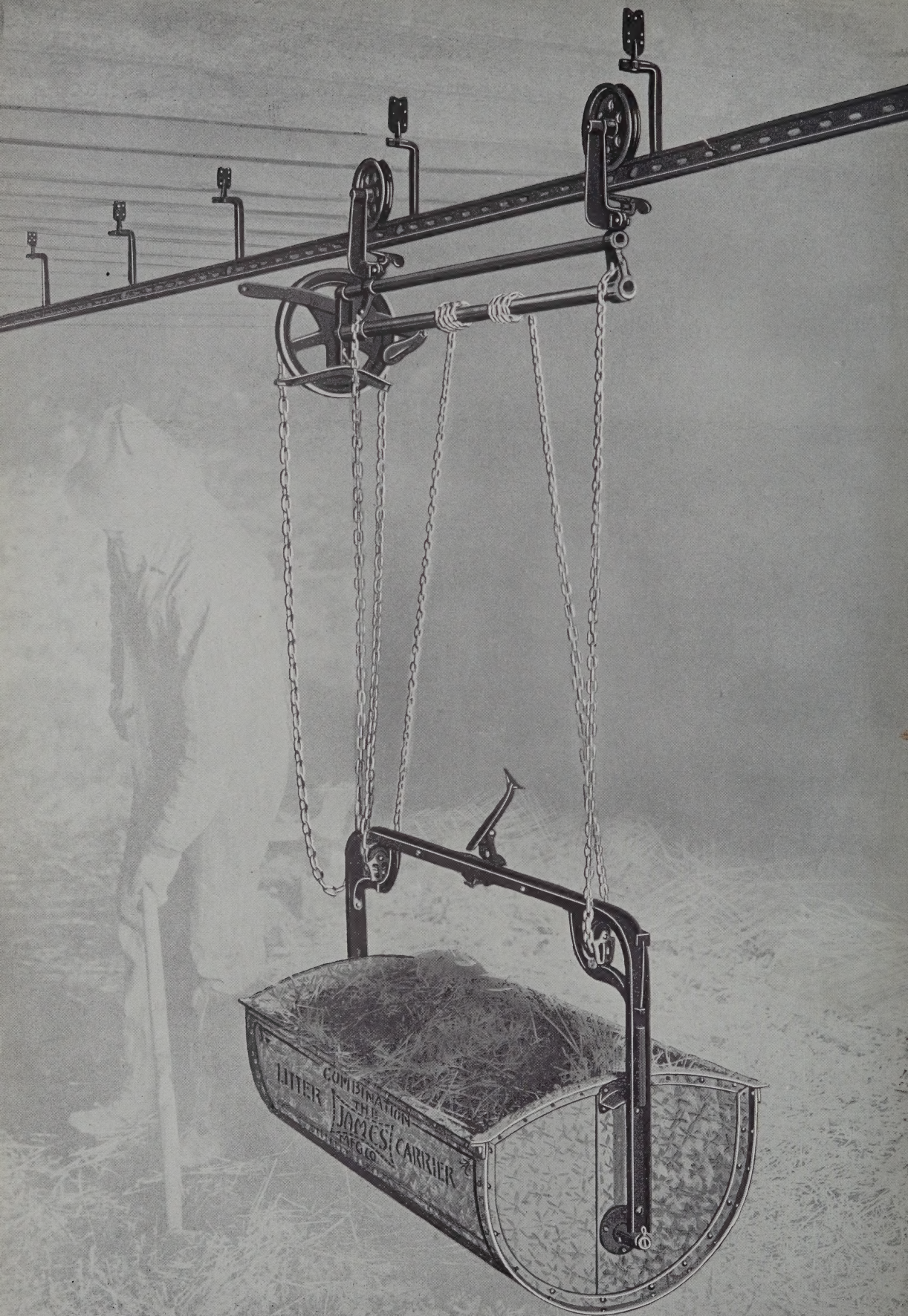


THREE-WAY SWITCH.

View from underneath, showing construction.



Barn of C. S. Potter
Ogden, Utah



James Combination Litter Carrier

(PATENT APPLIED FOR)

SPECIFICATIONS

TUB: Constructed of 18-gauge galvanized sheet steel. Built on a frame work of galvanized angle iron; angle iron at side edges being $1 \times 1 \times \frac{1}{8}$ in.; at the ends $1 \times 1 \times \frac{1}{8}$ in.; end of tub reinforced with galvanized steel plate $3\frac{1}{2} \times \frac{1}{8}$ in. Well riveted, all rivets galvanized and are $\frac{3}{16}$ in., except corner rivets, which are $\frac{1}{4}$ in. Gudgeon support is riveted to the two thicknesses of steel on end of tub. Tub is self cleaning.

PERFECT CONTROL CLUTCH AND BRAKE: Of malleable and bar steel. For explanation of operation see pages 122-3.

HOIST: Direct type; hoist wheel is 11 in. in diameter; raises tub quickly; made of best iron and steel.

CHAIN GUIDES: Malleable. Prevent hand chain running off hoist wheel.

SHAFT: $1\frac{1}{4}$ -in. cold rolled solid steel shafting, same as used in factories for line shafting. (See page 127.)

LIFTING CHAIN: Straight link chain, tested for several times the load it will have to carry. Three point suspension; in winding up forms an open spiral, preventing rubbing and wear. (See page 127.)

TRACKER WHEELS: Made of gray iron. Large diameter. Mounted in swiveled tracker wheel frames. Tracker wheel axle of steel with ten long cold rolled steel bearings.

TRACKER WHEEL FRAME AND KEEPER: So constructed that wheels can not jump the track whether on rod track, I-Beam Track or passing from one to the other. (See page 151.)

BAIL: Channel steel, reinforced by corner bail braces.

LATCH AND TRIP: Latches at both ends, locking and unlocking simultaneously. Tub dumps automatically when trip strikes the trip block; trip block, of bar steel $1 \times \frac{1}{4}$ in., can be locked at any desired point on the track.

CAPACITY: Tub is 40 inches long, 22 inches wide, 16 inches deep, and measures approximately 5 bushels.

WEIGHT: Approximately 145 pounds.

PRICE: James Combination Litter Carrier complete, as shown on page 156, without track or hangers (for which see pages 128-131 and 160), \$24.00. F. O. B. Ft. Atkinson, Wis.

No. 000000 rod track must be used with the combination carrier.



James "Chore Boy" Carrier (For Rod Track)

While the demand is more and more for the James I-Beam Track Carrier, with a swinging crane, there is some call for moderate priced rod track carriers for use in small barns, where only a few head of stock are to be cared for.

The James "Chore Boy" meets this need, combining as it does, all the desirable and essential features necessary for a rod track outfit at a moderate price.

By putting up the outer end of the track at the proper angle, the carrier, when loaded, can be made to run out, dump its load at the desired point, and return automatically to the barn. A vigorous shove at the barn door is all that is required.

The tub of the carrier is dumped by means of a trip block, which can be placed at any desired point on the track. When the trip strikes this block it unlocks the tub, the tub dumping either way, according to which side is loaded the heavier. An ingenious device makes the trip positive, so that tub is always certain to dump. Tub is so shaped as to be self cleaning.

The "Chore Boy" cannot jump the track, being prevented by automatic keepers on the tracker wheels. The keeper, however, unlocks as it strikes a curve, allowing tracker wheel to swivel; the other wheel remaining on the track is locked rigid and parallel with the rod track, thus overcoming the tendency to run sideways and bind. This position is maintained until the wheel strikes the curve; then the keeper unlocks and allows the wheel to swivel.

Each tracker wheel contains ten long, cold rolled steel bearings, producing a bearing almost frictionless.

The bail is adjustable, so that the tub can be lowered or raised.

The carrier can be adjusted to take either a left or right hand curve, it being only necessary to lift the wheels from the track, one at a time, and swivel them around.

Specifications

STEEL END TUB: Of 18-gauge galvanized steel with 1 x 1 x $\frac{1}{8}$ in. angle iron at side edges; end of tub reinforced at upper edge with 1 x $\frac{1}{4}$ in. bar steel; also reinforced with 3 $\frac{1}{2}$ x $\frac{1}{8}$ in. steel plate on end of tub.

BAIL: Of channel steel with heavy bail braces. Bail is adjustable.

GUDGEON: Attached to steel end tub, riveted through the two thicknesses of steel.

TRACKER WHEELS: Gray iron, lathe turned, large diameter, mounted in swiveled tracker wheel frames. Tracker wheel axle of steel with ten long cold rolled steel bearings.

TRACKER WHEEL FRAME AND KEEPER: So constructed that wheel cannot jump the track.

LATCH AND TRIP: Tub dumps automatically when trip strikes the trip block.

Trip block of bar steel 1 x $\frac{1}{4}$ in., can be locked at any desired point on the track.

CAPACITY: Is 36 inches long, 24 inches wide, 15 $\frac{1}{2}$ inches deep, and measures approximately 4 $\frac{1}{2}$ bushels.

WEIGHT: Approximately 80 pounds.

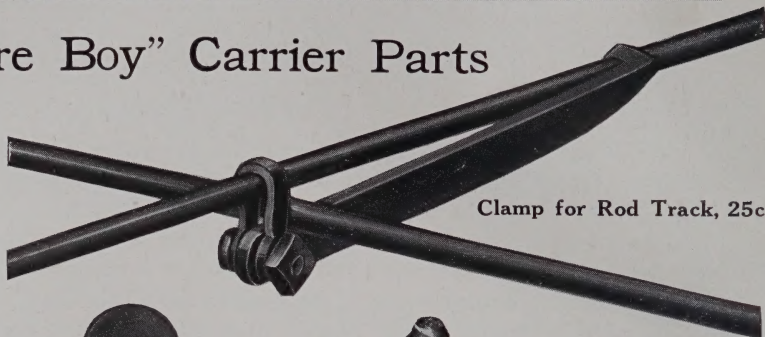
PRICE: "Chore Boy" Carrier complete, as shown on page 158, not including track, each \$16.00. F. O. B. Ft. Atkinson, Wis.

To be used on No. 0000 rod track.

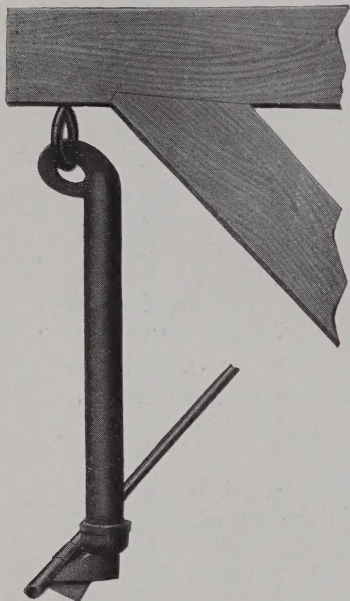
"Chore Boy" Carrier Parts

Six 0 Basic Steel Wire, cut to length, per 100 ft. \$3.00.

Four 0 Basic Steel Wire, cut to length, per 100 ft. \$2.67.



Clamp for Rod Track, 25c

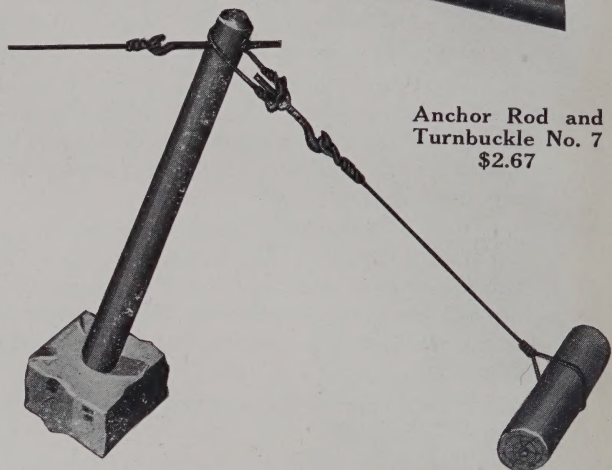


Spring Track Suspender, No. 3, \$2.00

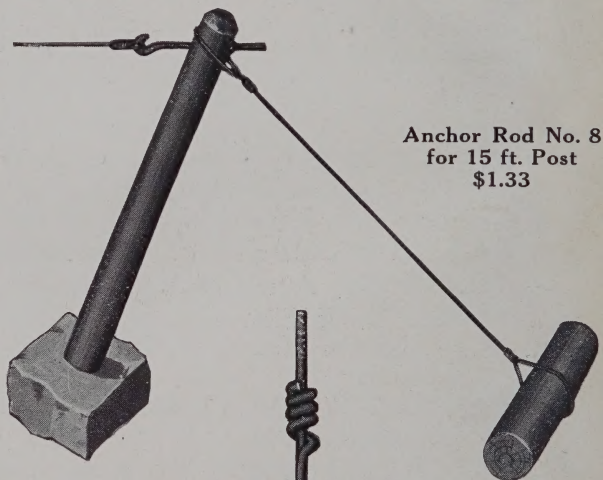


Rigid Track Suspender, No. 4, \$1.33

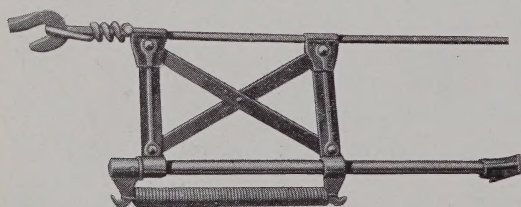
Tension Bolt
No. 5, $\frac{3}{8}$ " x 30",
67c



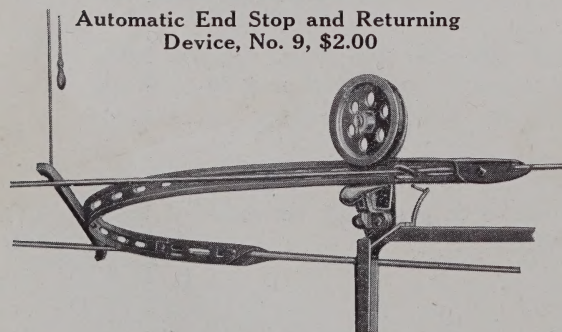
Anchor Rod and
Turnbuckle No. 7
\$2.67



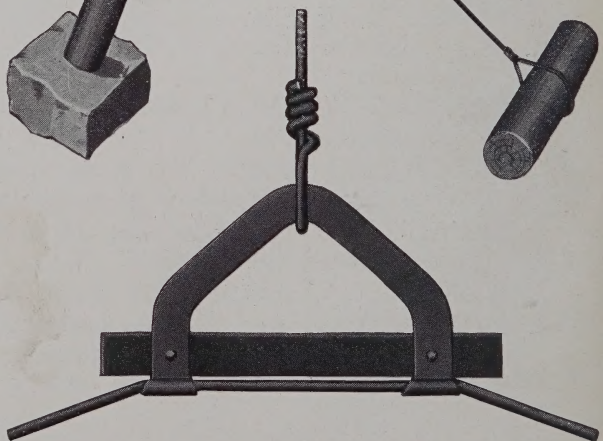
Anchor Rod No. 8
for 15 ft. Post
\$1.33



Automatic End Stop and Returning
Device, No. 9, \$2.00



Switch or Curve, No. 6, \$2.67



Angle Bracket for Rod Track, \$1.33

F. O. B. Ft. Atkinson, Wis.

JAMES VENTILATORS

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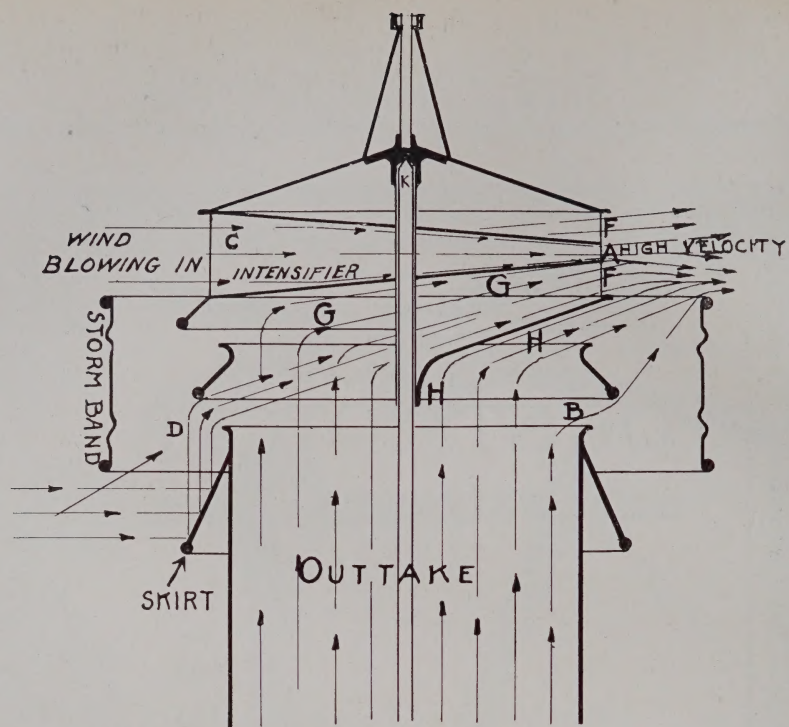


Fig. 2

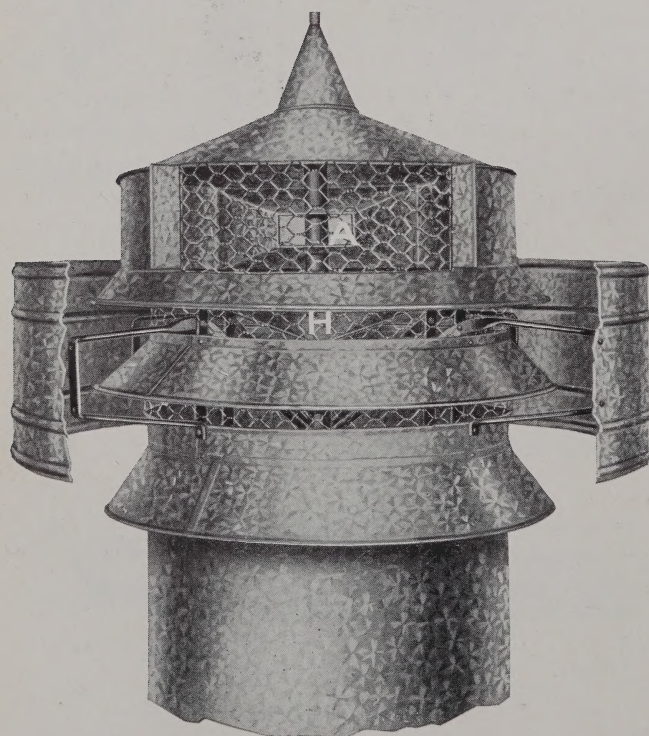


Fig. 3

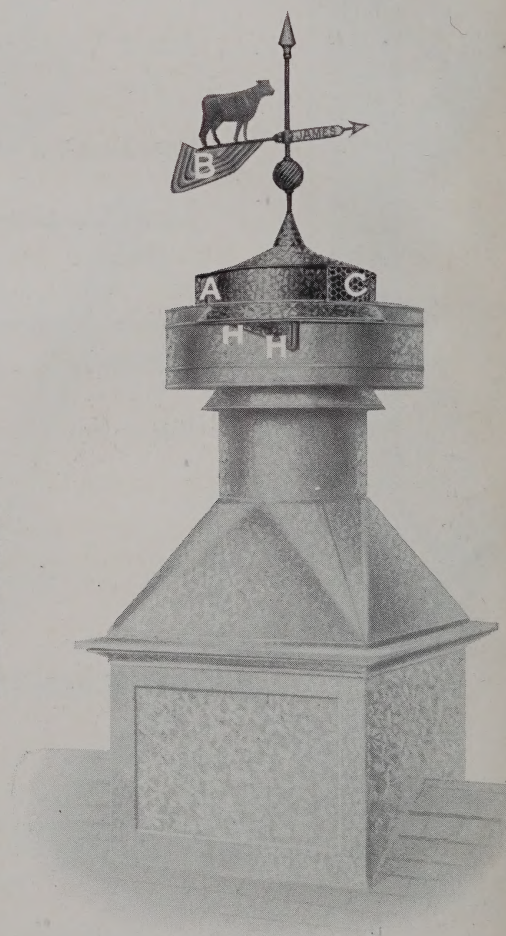
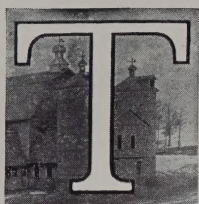


Fig. 4

The James Ventilator*



THE JAMES VENTILATOR gets better results from any ventilating system because it takes advantage of the power of suction—it helps pull foul air out of the barn and bring fresh air in.

The top of the James Ventilator (the dark portion of Fig. 4) turns on a hardened steel point, like a compass “K” (Fig. 2). The vane “B” (Fig. 4) keeping the opening “C” (Figs. 2 and 4) always toward the wind.

The tapering construction of the “intensifier” (“C-A,” Figs. 2 and 4) “speeds up” the wind as it passes through, so that it leaves “A” at high velocity. This creates *suction* in the vicinity of “FF” (Fig. 2), exerting a powerful pull on the air in the outtake flue.

That the wind is speeded up when passing through this tapering intensifier is easily demonstrated by a little experiment which you can make yourself. Try it.

Take a sheet of paper about the size of this page. Roll it in the form of a cone having a diameter of about one-fourth inch at the small end and one inch and a half at the big end.

First, put the little end in your mouth and blow, holding one hand about six inches in front of the big end. The current of air can hardly be felt.

But now turn the paper cone the other way around. Put the big end in your mouth and blow, holding one hand about six inches in front of the little end. A strong current of air will be felt.

In just the same way, the wind passing through the tapering intensifier in the James Ventilator increases in speed and leaves with high velocity at point “A” (Fig. 2).

If you are a smoker, here is another easy experiment which will further illustrate the *suction* principle of the James Ventilator.

“Hit up” your pipe or cigar until you have a good thick cloud of smoke. Then pucker your lips and blow vigorously into the center of the smoke cloud. Not only the smoke directly in the path of the current of air is removed, but the surrounding smoke is also sucked into the current and carried away.

Just so the higher velocity at point “A” creates suction, carrying the surrounding air with it. As this surrounding air is warm air from the outtake flue, the air removed by the suction is constantly replaced by more air from the flue, thus speeding up the outflow of foul air and increasing the amount removed in a given time.

*NOTE: Pages 234 to 248, on Ventilation, should be studied before reading this section on “The James Ventilator.”

It is very much the same principle as that of the ejector in a steam engine.

Another illustration in point is the suction created by the rapid movement of a train or an automobile. Watch an express train passing by and you will see a cloud of dust and light weight refuse, such as scraps of paper following behind.

In the same way the velocity of the air leaving the intensifier at "A" carries the surrounding foul air with it.

The foul air being removed from the barn is of course at once replaced with pure air through the fresh air intakes.

The slightest breeze will turn the ventilator top, and a very light breeze blowing through the intensifier will create some suction.

Aviators have found that even when there is no wind or air movement apparent to a man on the ground, there are nevertheless currents of air in constant motion. Hence the James Ventilator is always at work helping to remove foul air.

Every system of ventilation depends for its efficiency on the thoroughness with which foul air is removed and fresh air brought in to take its place.

The motive power on which other systems depend for a continuous upward current in the foul air flues, is a difference in temperature between the air in the stable and the air out of doors.

Or in other words, they depend upon the air in the stable being lighter (warmer) than the outside air.

The air in the stable being warmer, the air at the inside opening of the outtake flue will be lighter than the air outside and will rise.

The upward movement of air in the flue started in this manner is assisted to some extent by "aspiration"—that is, by the wind blowing across the top of the flue; just as a chimney has a stronger draft when the wind is blowing hard.

But where dependence is placed wholly on the motive power furnished by the warmer (lighter) air and by the wind blowing across the top of the outtake, the ventilating system will sometimes not operate satisfactorily in the warmer weather and under certain atmospheric conditions.

The James Improved Ventilating System is more efficient because it not only uses the same motive forces employed in other systems, but it adds the additional motive power of *suction*, applied at the outlet of the foul air flue.

It removes a greater quantity of foul air in a given time and makes the ventilation more uniformly successful under all conditions.

The James Ventilator is also designed so that it offers little hindrance to the outflow of air, the air current having to make but one turn and that of large radius much less than a right angle (see "GG" "HH," Fig. 2).

Actual tests by a competent engineer have shown that the James Ventilator gives 65 per cent better ventilation than the usual wooden cupola and 30 per cent better ventilation than the ordinary ventilator for dairy barns now on the market.

The great superiority of the James Ventilator is due to these two James principles: (1) construction that offers the least possible hindrance to the outward flow of foul air, and (2) the application of *suction* at the proper point to help pull the foul air out.

How these two important principles are combined with the best features of other types of ventilators, at the same time avoiding their disadvantages, can perhaps best be shown by a brief discussion of the principles on which ventilators are constructed, and the reasons why certain features are essential.

A ventilating flue is much like a chimney. But while the same principles apply to both, with a ventilating flue it is necessary to go a step or two further.

A ventilating flue, like a chimney, should be as straight as practicable, higher than the building and of ample size. Both must be airtight in order to "draw well."

The ventilating flue, however, cannot be left without a cap, as may oft-times be done with a chimney, and a little thought will make the reason clear.

Rain and snow falling into the chimney do no harm, for the heat is sufficient to vaporize the moisture and the upward current carries it out again.

With a ventilating flue, however, there is not sufficient heat for this purpose and hence, even were there no other reason, a ventilating flue would need to be capped to protect against the weather.

The foul air, in order to leave an outtake flue not capped with the right type of ventilator, would often have to fight its way directly against counter currents. These outer currents, being stronger, would force the foul air back, down the flue. This would reverse the ventilating system, removing the warmer, purer air instead of the colder, foul air.

The old-fashioned wooden cupola was intended more as an ornament to the barn rather than for the more practical purpose of aiding ventilation, although in building it an attempt was made to keep out the weather.

The wooden cupola, however, seriously interferes with the outflow of air. Usually the total area of the outlet space between the horizontal slats of the louvres is less than the cross section area of the flue, thus choking down the flow of air.

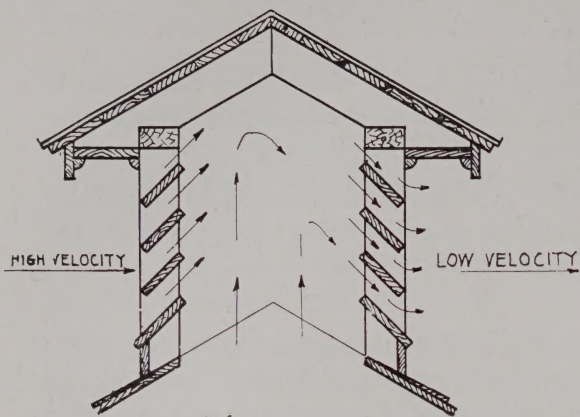


Fig. 5

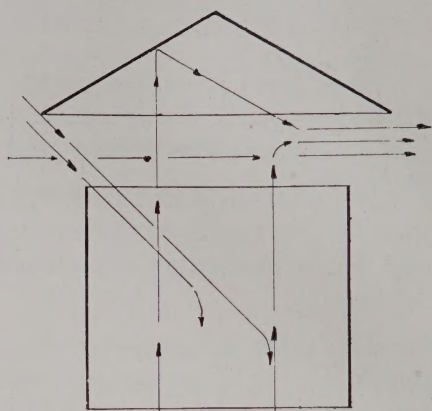


Fig. 6

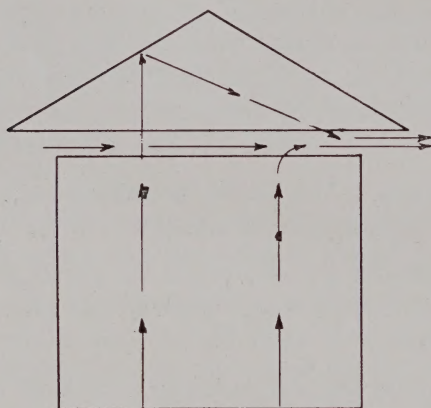


Fig. 7

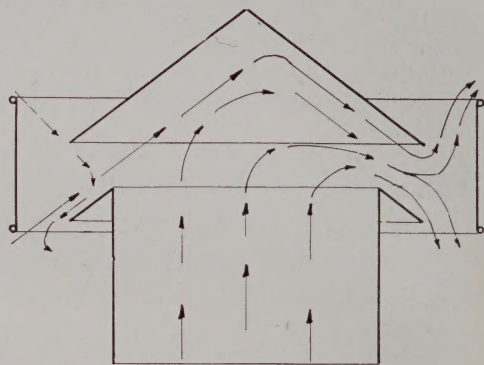


Fig. 8

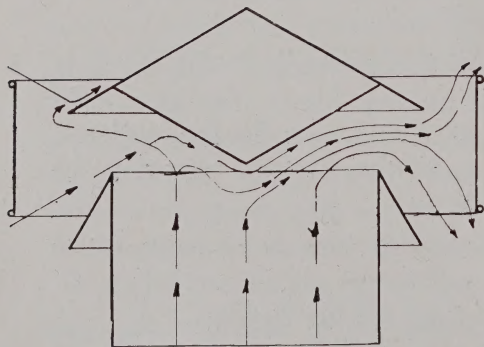


Fig. 9

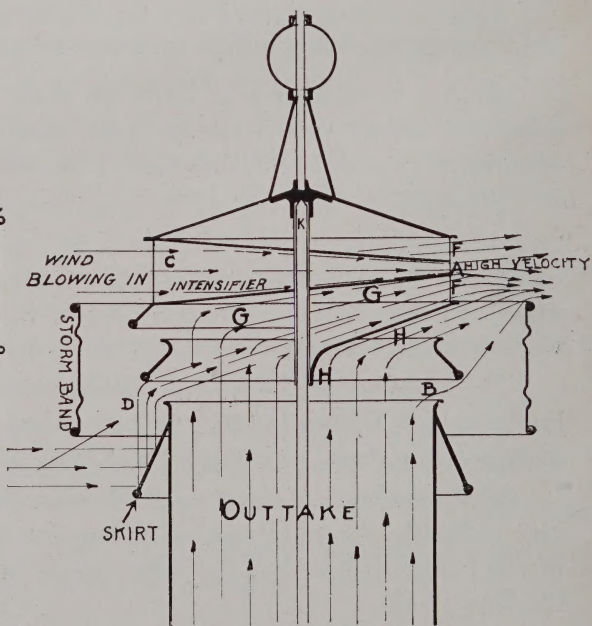


Fig. 10

Besides this interference with the air flow, the air currents, to escape, must make a very sharp turn, as indicated by the arrows in Fig. 5, the flow of air almost turning back upon itself.

Then, too, whirling or eddying currents are caused when the wind blows into the cupola and comes into conflict with the upward current of warm air, hindering still further the outflow of foul air.

All together, these restrictions upon the free escape of the air make proper ventilation impossible with the old-style wooden cupola.

The ordinary, locally made metal cupola, is also unsatisfactory, not alone because it is usually made far too small for the amount of foul air to be removed but also because when made weatherproof, the cap must be placed too low, as shown in Fig. 7, slowing down the outgoing current of air.

Or if the cap is placed high, the rain and snow and wind drive down the flue, as in Fig. 6.

Both these types of cupolas shown in Figs. 6 and 7 have the fault present in the wooden cupola—that of checking the outflow of air by having to make a sharp turn and by the eddies created when the wind entering from outside combats the upward flow of air in the flue.

To prevent the troubles caused by the wind blowing into the flue, a storm band is ordinarily used as shown in Figs. 8 and 9. This keeps out snow and rain and makes the ventilator almost proof against the wind.

In ventilators other than the James, however, the storm band hinders the outflow of air by forcing the air current to make *two* sharp turns.

Also, the upward current striking the top of the ventilator is deflected in such a way as to cause eddies, choking the flue and interfering with the free escape of the foul air. A little wind gets by the under side of the storm band and this too, creates eddies.

Fig. 9 shows a type of ventilator which avoids the creation of the eddies, but still compels the air current to make *two* turns.

With the James Ventilator, however, the outgoing foul air has a *free outlet* unimpeded by excess friction, by right angle turns, by eddies or by being forced back upon itself.

The upward moving foul air strikes an upward sloping surface at GG and HH (Fig. 10) and is turned gently outward and upward.

A deflector in the shape of a half cone "HH" (Fig. 10 and 4) and "H" (Fig. 3) prevents the outflow of air in that half of the flue interfering in any way with the outflow of air from the other half.

The little wind which can blow in, when an upward slant of wind strikes the ventilator must blow directly through and out (see D-G-G, Fig. 10).





Experimental Barn
James Manufacturing Co.

This adds the direct pressure of the wind to the other motive forces, further accelerating the outward flow of air, instead of impeding it by causing eddies as in Fig. 8.

Thus it will be seen that in the James Ventilator, the outflow of air not only has a free, unobstructed outlet, but the amount of foul air handled is increased by *suction* applied at the outlet and by wind pressure at "D," (Fig. 10).

And remember that with the James Ventilator, full advantage is taken of the "aspiration"—the wind blowing across the top—as well as of the difference in temperature between the air in the flue and the air out of doors.

The James Ventilator is absolutely storm proof—neither snow nor rain can enter; nor can birds get in, all openings being covered with galvanized bird proof netting as shown in Fig. 3, page 162.

The James Ventilator lasts a lifetime; does its work without attention; interferes in no way with hay carrier track; and is easy to put in place on the barn.

Appearance

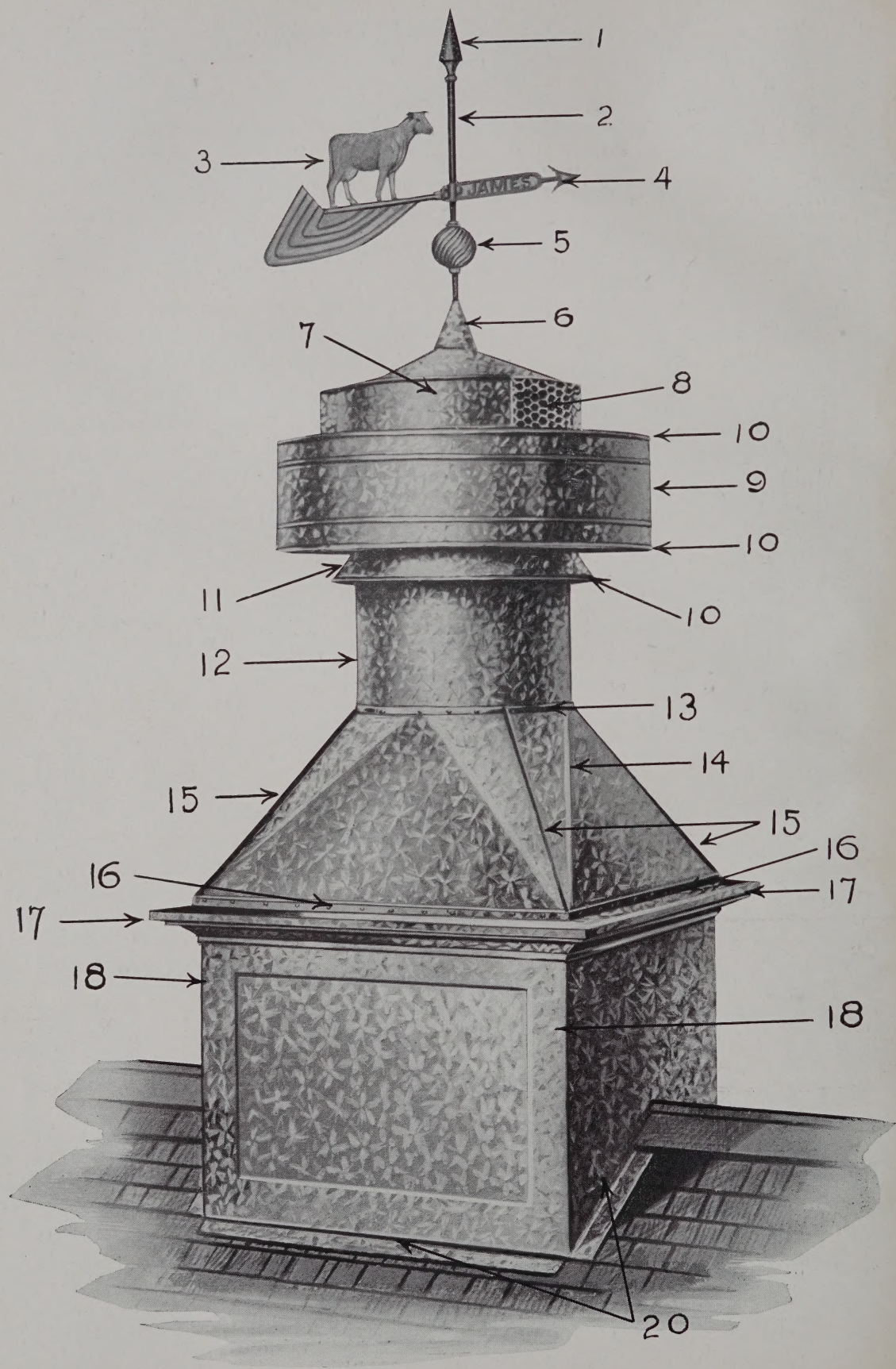
The James Ventilator is worth its cost, if only for the increase in selling value of the farm caused by the improved appearance of the barn. It is the finishing touch that makes the barn good looking.

Sizes and Construction

The ventilator is made in three sizes, having barrels 24 inches, 30 inches and 36 inches in diameter. The silo ventilator is made in 18-inch diameter only, and does not have revolving top or intensifier. The silo ventilator at slight additional expense, can be made to fit any silo roof. The illustration on page 176 is shown on a round silo roof.

Height. The heights are thirteen feet seven inches over all in the 36-inch diameter; twelve feet three inches in the 30-inch diameter; ten feet eight inches for the 24-inch. The silo ventilator is six feet high over all.

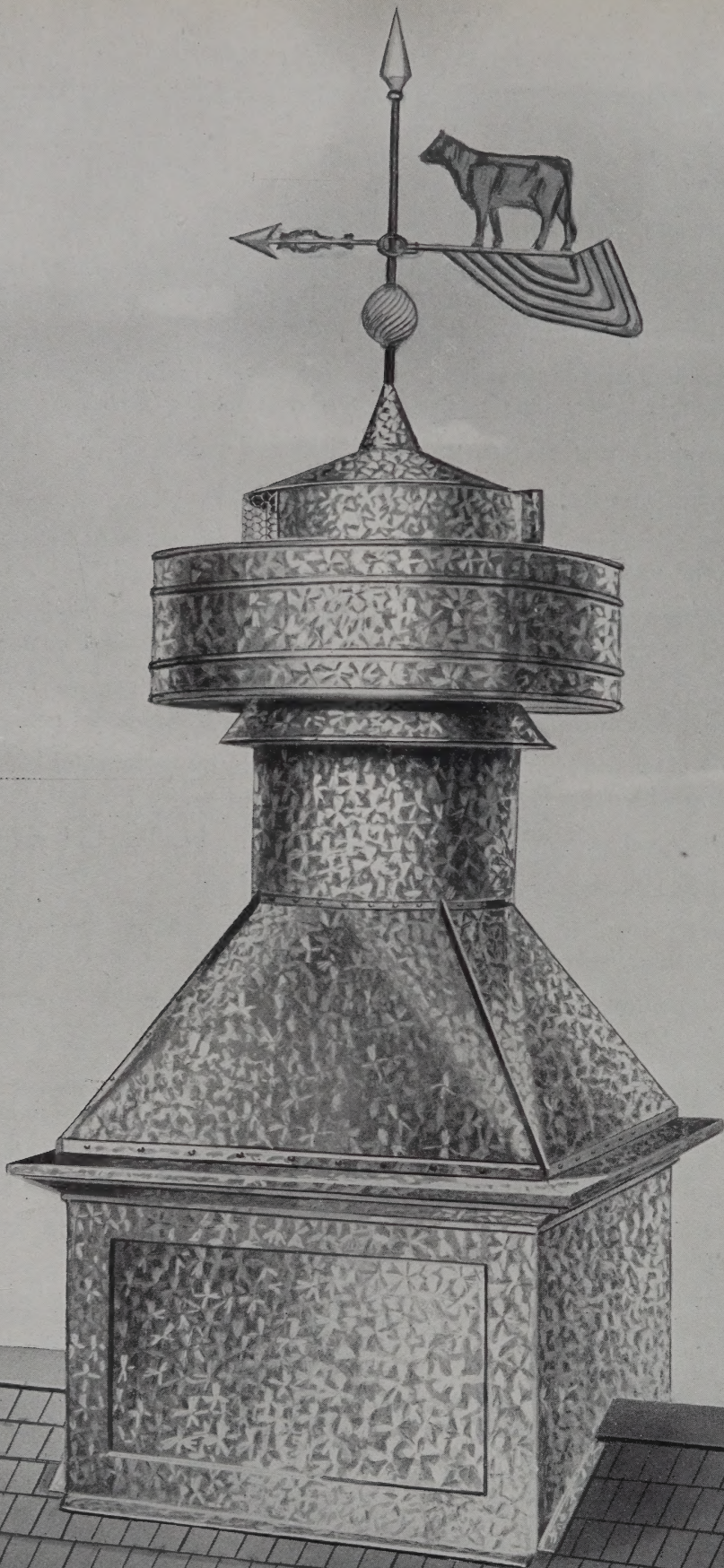




Specifications

(See page 172)

1. Double cone steel top, solidly fastened on.
2. Galvanized pipe $1\frac{1}{16}$ -inch outside diameter. This pipe passes into cone 6, to which it is securely soldered, and is also threaded into a malleable casting mounted inside of revolving hood (7).
3. Full bodied, double strength stamped zinc, covered with genuine gold leaf. Vane securely fastened to pipe and always keeps opening (8) to the wind.
4. Malleable Arrow covered with gold leaf and red.
5. Glass Ball five inches in diameter. Extra heavy.
6. Heavy galvanized cone, adds to appearance and strengthens the pipe which carries the vane.
7. Revolving hood, containing intensifier and hardened steel frictionless bearing. This bearing is entirely protected from the elements and no rain, snow or ice can interfere with the motion of the hood.
8. Opening into intensifier. Protected by galvanized bird-proof netting.
9. Heavy galvanized storm band, stiffened greatly by ornamental beading. This band with skirts inside keeps out rain and snow.
10. Heavy steel wiring, amply strengthening storm band and all skirts.
11. Skirt greatly assists in aiding the circulation of air.
12. Heavy galvanized steel body strengthened by galvanized steel angle irons which are thoroughly braced.
13. Special alloy non-corrosive rivets, used throughout entire structure.
14. Heavy galvanized steel body strengthened by standing seams (15).
16. The fastening at this point is the strongest possible. Consisting of extra heavy galvanized angles to which the body is securely bolted by means of special alloy non-rusting bolts and nuts.
17. Heavy galvanized steel cornice, made by us from our own designs.
18. Corners made from extra heavy galvanized steel. Folded and locked into side and top sheets to form a solid and tight structure.
20. Galvanized steel flashing, so constructed as to leave the least work for the workman placing the ventilator on the roof.



James Ventilator — Closed Base

Prices of James Ventilators (CRATED FOR SHIPMENT)

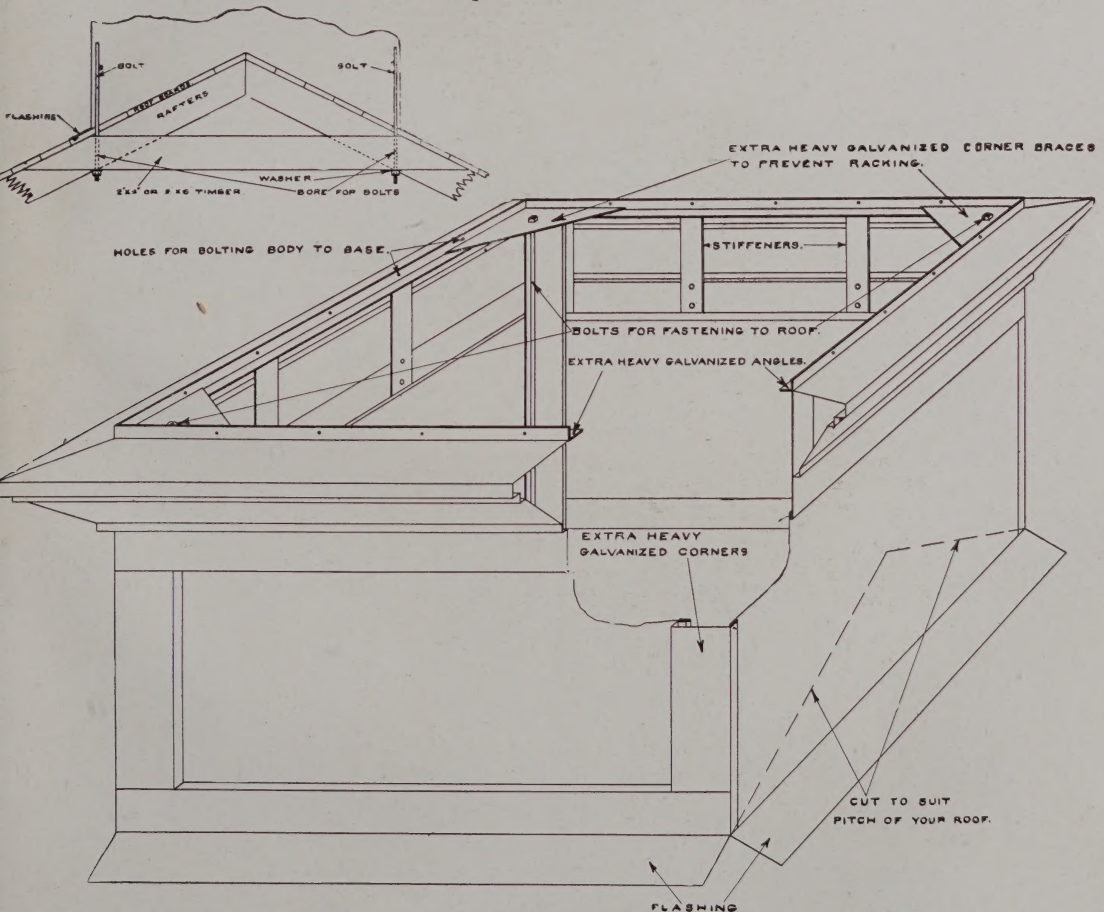
	Closed Base	Silo
18-inch.....		\$15.00
24-inch.....	\$35.00	
30-inch.....	40.00	
36-inch.....	45.00	

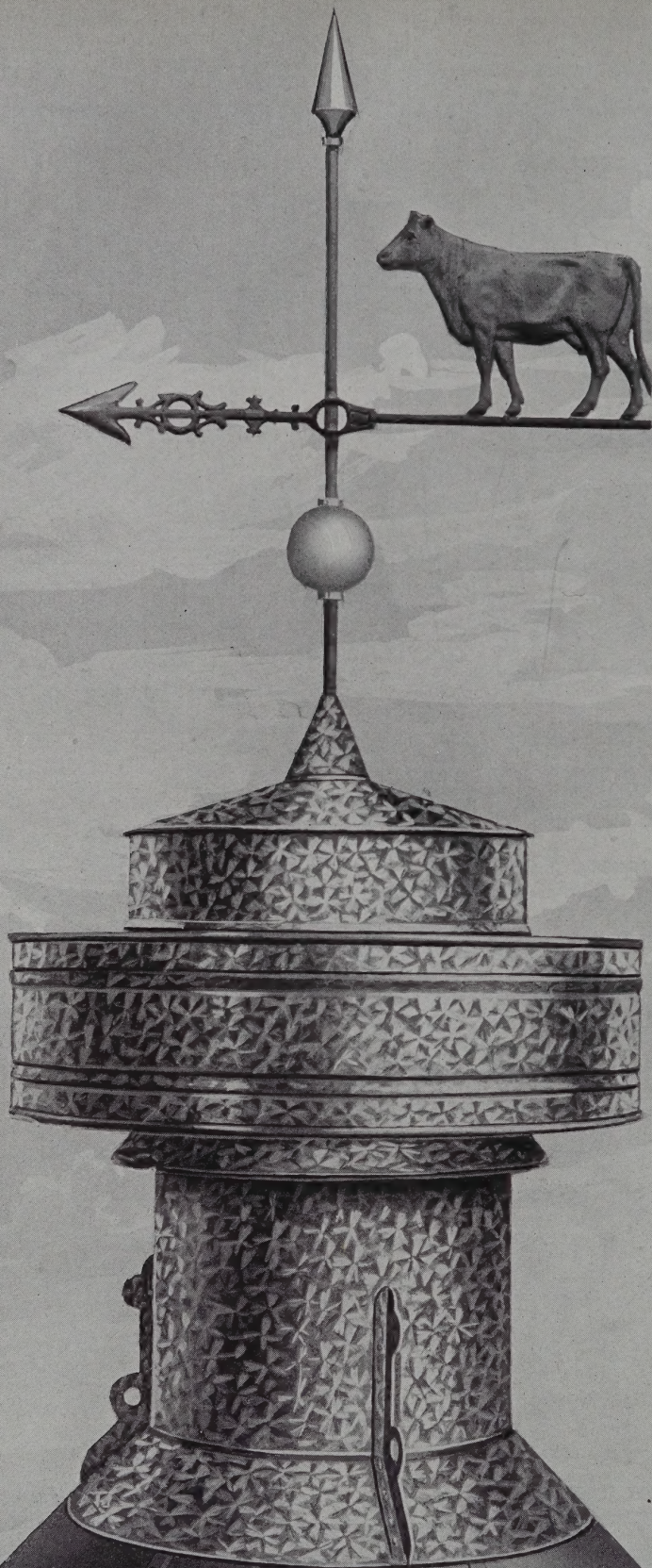
F. O. B. Ft. Atkinson, Wis.

Any name or date will be stenciled on the base for \$1.00 additional.

Size of James Ventilator to Buy

Diameter of Ventilator	Recommended for outtake flue inside dimensions of	Capacity for
18-inch.....	21" x 21" and under	7 horses or 8 cows
24-inch.....	Up to 27" x 27"	16 horses or 20 cows
30-inch.....	Up to 33" x 33"	24 horses or 30 cows
36-inch.....	Up to 40" x 40"	34 horses or 41 cows

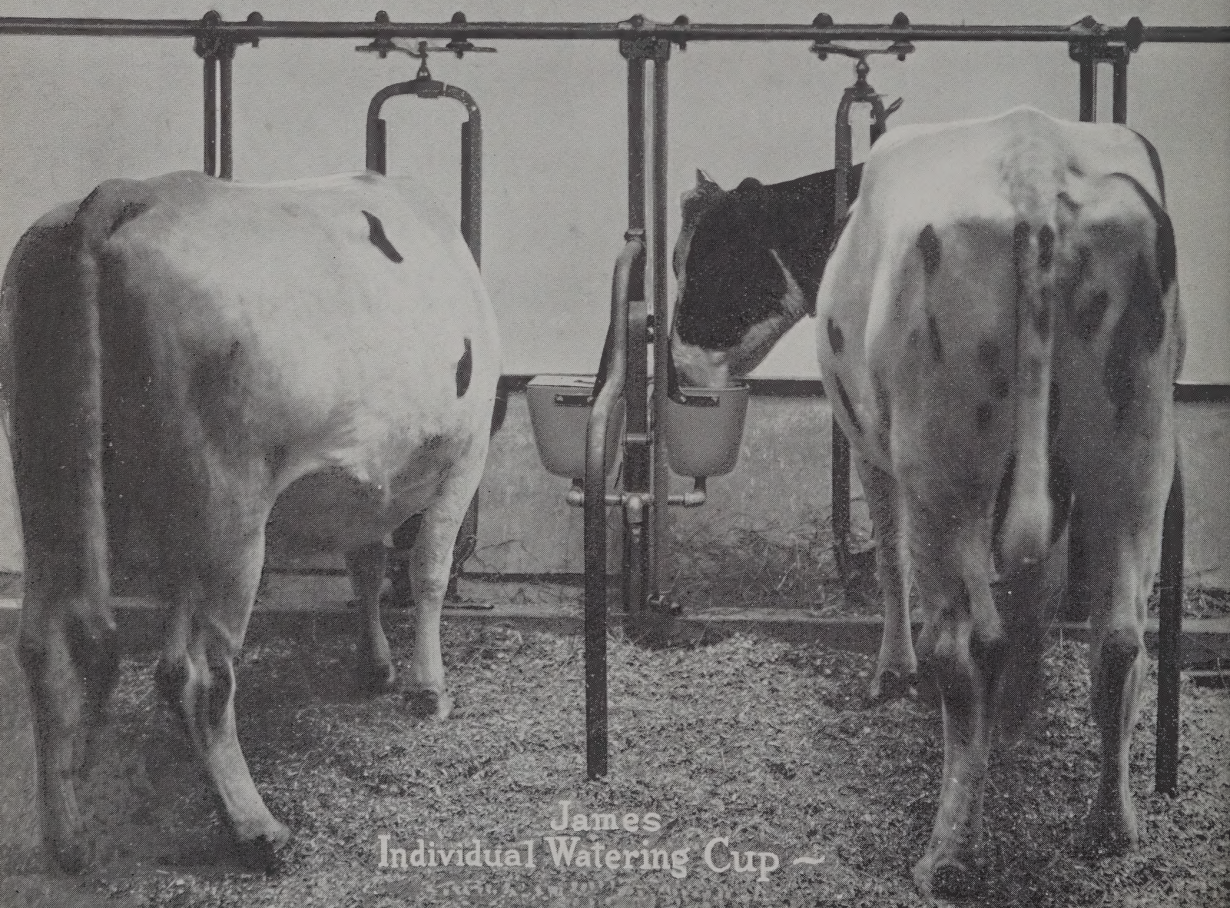




James Silo Ventilator

JAMES BARN EQUIPMENT (MISCELLANEOUS)

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Gate (Alley)	190
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James Individual Watering Cups

A Cup For Each Cow

Every dairyman now realizes the need of giving the cow plenty of fresh water, warmed sufficiently in the wintertime to take off the chill. Regardless of how well the cow may be fed and cared for in every other way, the maximum yield of milk cannot be secured unless she has plenty of water.

The old way of watering once a day out in the yard is the most expensive that could be devised. The cows become very thirsty; and drinking excessively of ice-cold water, become chilled, and are forced to use up energy getting warm again that should have been used in making milk.

Many comparative tests have been made to ascertain the amount of increase in milk yield by reason of proper watering in the barn. Mr. Wm. B. Goodrich, of Climbing Hill, Iowa, demonstrated that his herd produced on the average three pounds more of milk per day because of his use of watering buckets. You can figure out for yourself how long it would take to pay for the outfit. With a herd of thirty cows, the average daily increase would be ninety pounds; or about 2,700 pounds per month. Figuring the milk at about \$1.50 per hundredweight, the watering buckets would earn \$40.00 each month, while the cows are in the barn.

But the increase of milk yield is not the only advantage. There is also the saving of time and labor of the attendants, and, as compared with other methods of watering in the barn, a saving of water. More important is the prevention of the spreading of contagious diseases through the water, for with the James Watering Buckets each cow is furnished pure, fresh water, direct from the protected supply tank.

Where watering buckets are not so constructed as to prevent it, cows will often find amusement in slopping water out on to the floor, playing with the water in this way at intervals throughout the day. This gets the floor very wet where the cow lies down.

James Watering Buckets have a flange on the inner edge, which makes it impossible for the cow to slop the water out.

The James Individual Buckets can be used with the James Self-Cleaning Mangers or with the raising manger divisions, or with no mangers at all.

Each cow has her individual bucket, the self-regulating lid being automatically kept closed, excepting while the cow is drinking; the lid is easily opened by the cow in whose stall it is located, but not by a neighbor.

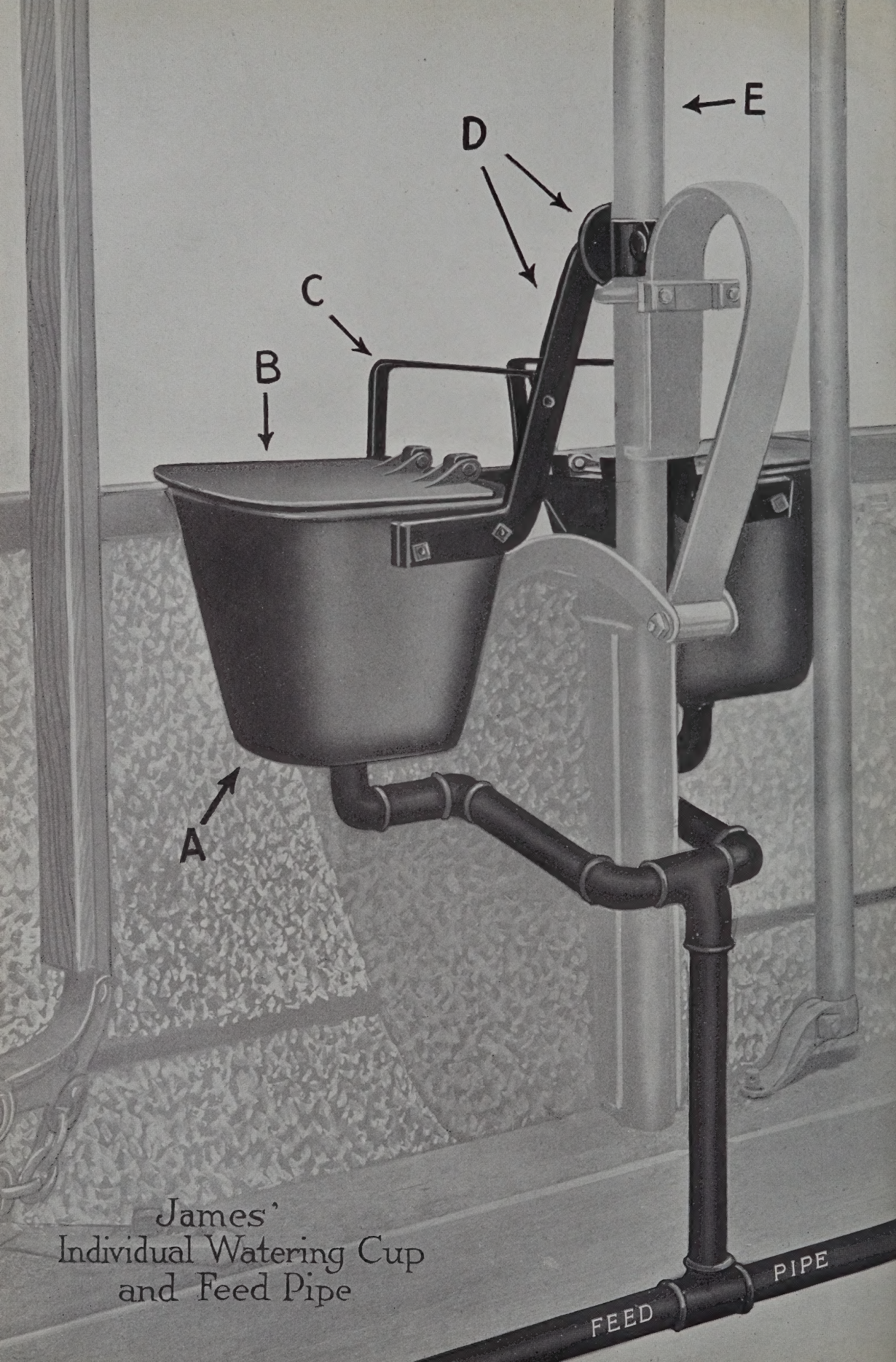
This watering system requires only the buckets; a supply tank with float feed and valve to maintain a uniform level of water in the buckets; a constant source from which the supply tank may draw its water; and the necessary piping to connect the same. It is easily installed, and once in requires practically no attention—the cows have pure, fresh water before them every moment of the day and night.

The level of the water in the buckets is regulated by the level of the water in the supply tank, being the same.

The level of the water in the supply tank is maintained by a float feed and valve; this supply tank taking its water from any source having a sufficiently higher level to feed regularly, such as a spring, stream or tank.

Specifications

Bucket (A) of cast iron, 8½ in. deep by 9½ in. by 9½ in., with galvanized cover (B) and guard (C) to prevent cover tipping back; fitted with a removable, non-rusting valve trap, check valve and valve seat with dirt-protecting lid for valve—allowing water to



James'
Individual Watering Cup
and Feed Pipe

enter, but preventing it from flowing back. Bucket cannot overflow, if supply tank is properly located. A flange inside the upper edge of cup prevents the cow from slopping water out. Many cows like to play with the water, if ordinary cups are used, splashing it out and wetting the floor and the bedding on which they lie. We have spent 18c additional on each cup to stop this form of amusement, thus keeping the stall dry. Drain plug is provided. Inlet pipe screws into bottom of bucket, forming a tight connection that will not leak. Inside of bucket is made smooth for easy cleaning. Weight approximately 18 pounds.

Price, per bucket, complete with fittings for attaching to either $1\frac{5}{8}$ -in. or $1\frac{7}{8}$ -in. O. D. piping, \$1.85.

Per bucket, *without cover*, with fittings for attaching to either $1\frac{5}{8}$ -in. or $1\frac{7}{8}$ -in. O. D. steel piping, \$1.35.

Pipe and fittings for connecting pair of watering cups to either $1\frac{5}{8}$ -in. or $1\frac{7}{8}$ -in. feed pipe, \$1.00.

Feed pipe, including couplings, in random lengths, $1\frac{5}{8}$ -in. O. D., 9c per foot; $1\frac{7}{8}$ -in. O. D. 11c per foot.

Supply tank, galvanized, 10 in. deep by 24 in. by 14 in., with outlet and inlet connections, and with galvanized cover, price, each, \$3.00.

Supply tank fittings, including ball valve and float, \$2.50.

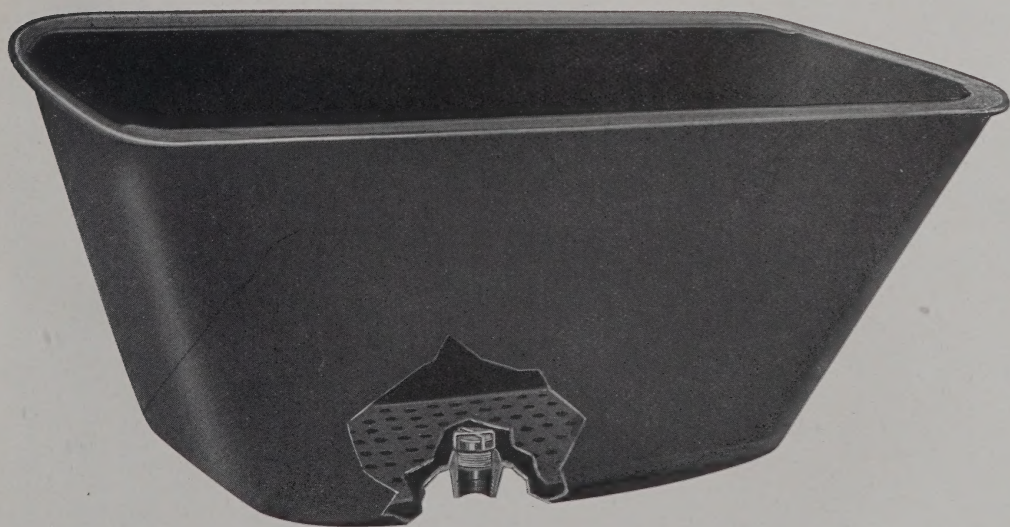
James Double Watering Bucket

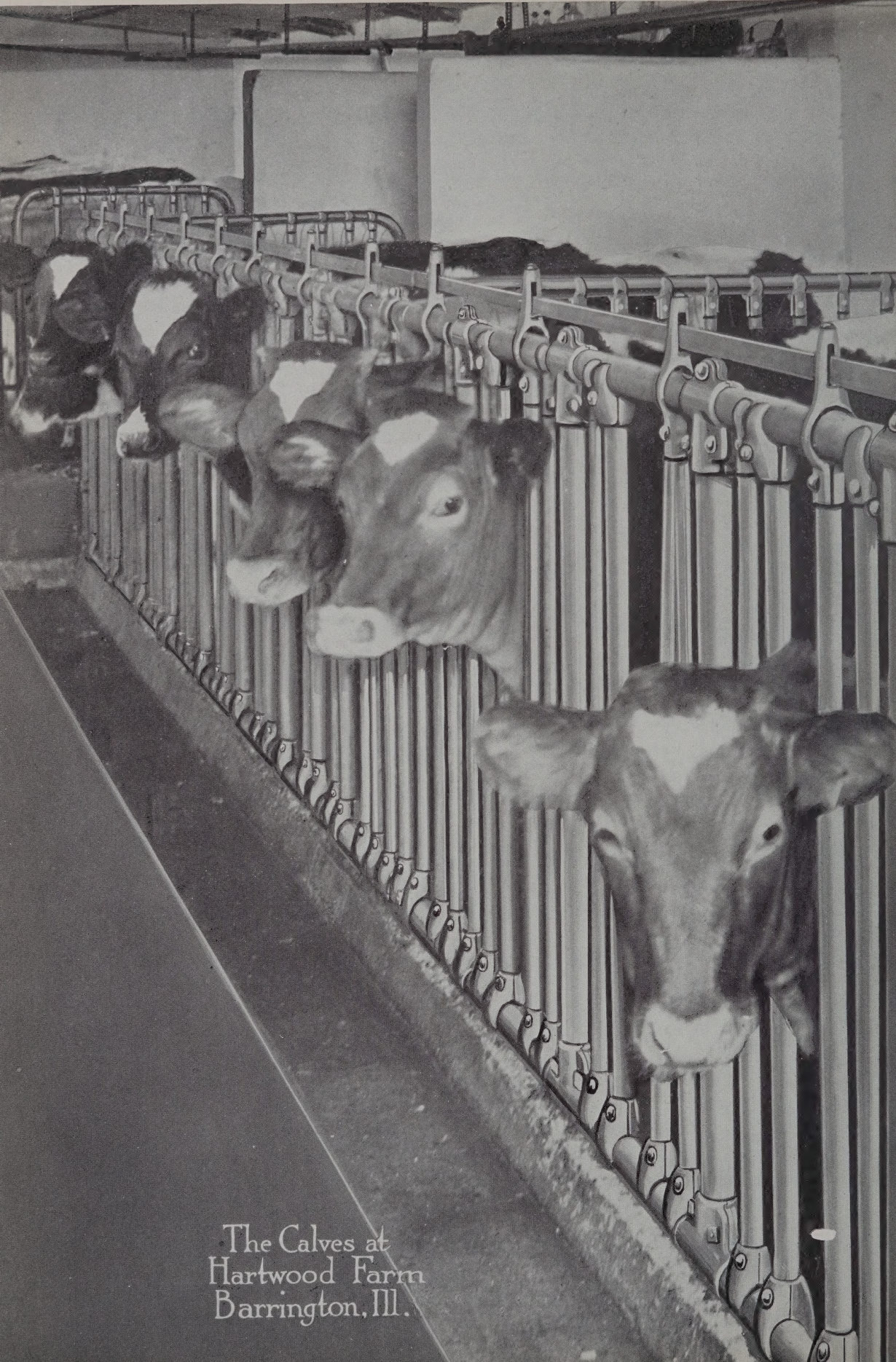
Construction same as above, excepting that bucket is $18\frac{1}{2}$ in. long, $10\frac{1}{4}$ in. wide and $8\frac{3}{4}$ in. deep. Weight, without covers, approximately 25 pounds.

Price, with covers, including fittings for attaching to either $1\frac{5}{8}$ in. or $1\frac{7}{8}$ in. steel frame, per bucket, \$2.00.

Without covers, per bucket, \$1.50.

Prices are F. O. B. Ft. Atkinson, Wis.





The Calves at
Hartwood Farm
Barrington, Ill.



James Name Plate

Any dairyman who takes pride in his individual cows, their pedigrees or their records, will find the James Name Plate the most convenient of places on which to display such data; it is also very useful for memoranda relating to the particular cow to whose stall the name plate is attached, such as instructions for feeding.

The James Name Plate adds the finishing touch to the stall or pen, just as the speedometer does to the automobile, and is a convenience for the attendants.

The plate which we furnish with the frame is black, and may be written upon with a slate pencil, the same as you would write upon a slate. The writing may be erased and rewritten as many times as may be desired.

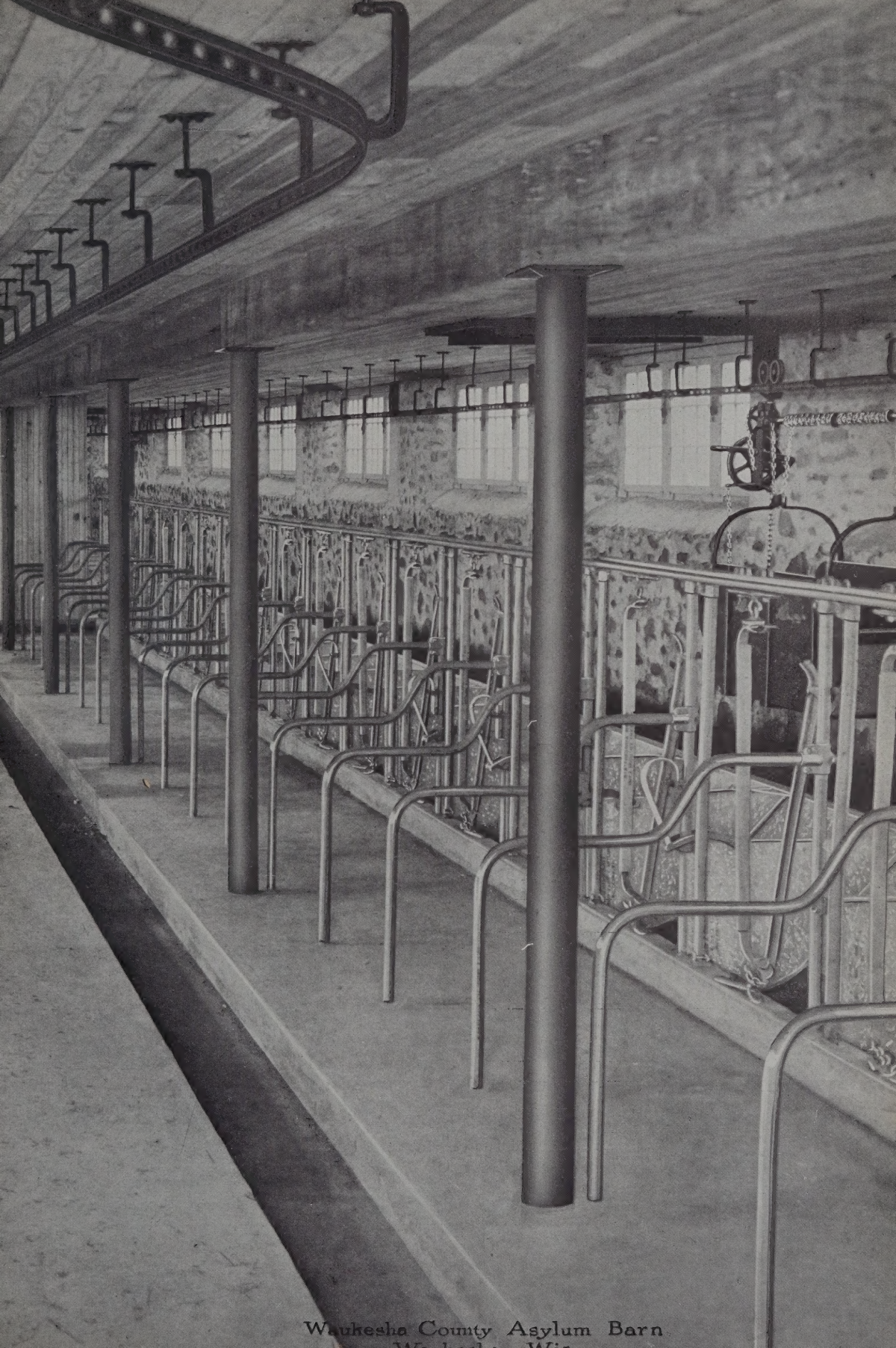
If preferred, we will furnish a name plate of blank cardboard with two pieces of transparent celluloid, instead of the black plate.

Easily and quickly attached to either the steel or the wood stalls, or to the cow pens or bull pens. When ordered for pens, size of pipe to which the name plate frame is to be attached must be given, in order that proper clips may be sent.

Price, each, both primer coat of paint and coat of enamel baked on, 50c. F. O. B. Ft. Atkinson, Wis.



Detail of James
Steel Column
Red-Granite
Filled



Waukesha County Asylum Barn
Waukesha, Wis.

The James Composition Columns

In the two-story barn of the usual width, the second floor must be supported either by trussing from above or by columns below. There is absolutely no objection to columns in the stable, providing they are of the right kind and properly located.

Ofttimes, too, columns are needed in one-story barns, to support the ceiling.

The James Composition Columns overcome all the objections to the old-style wood columns; they occupy but one-third the space, are fire-proof, interfere less with light and with the circulation of air, are neater, more sanitary, more up to date in appearance, and are more durable, costing less in the long run than wood.

James Columns are less expensive than the trussing required if columns are dispensed with—at the same time the haymow is left clear of obstructions.

The saving in space is very considerable. The 4½-in. James Column, for example, has a safe carrying capacity equivalent to an oak or a yellow pine post 6 x 8 in., or a white pine post 8 inches square.

The 4½-in. James Column has a cross section area of 15.9 inches as compared with 48 square inches cross section of the oak or yellow pine post, and 64 square inches of the white pine post.

From this it will be seen that the James Column of equal strength takes less than one-third the space occupied by the wood column.

James Composition Columns are made up of an outer shell of high-grade new steel, rolled especially to withstand high pressures, filled with a secret formula, the main ingredients of which are red granite, torpedo washed sand and Portland Cement. The columns are hydraulically filled in such a way as to avoid air pockets and sponginess.

Prices on James Columns should not be compared with columns made from inferior materials; or from second-hand boiler tubes, because of the danger of such tubes having rusted thin in spots.

James Columns are furnished regularly in the sizes given in the following table:

Column Prices

Outside Diameter	7 Ft.	7½ Ft.	8 Ft.	8½ Ft.	Price Includes	
					Base	Cap
3½-in.	\$3.20	\$3.50	\$3.80	\$4.10	6"x6"	6"x 8"
4½-in.	4.00	4.35	4.70	5.00	8"x8"	9"x11"
5 -in.	5.00	5.40	5.80	6.20	9"x9"	9"x11"

Where special lengths of columns are required, a charge of 50c is made for cutting and refilling the end.

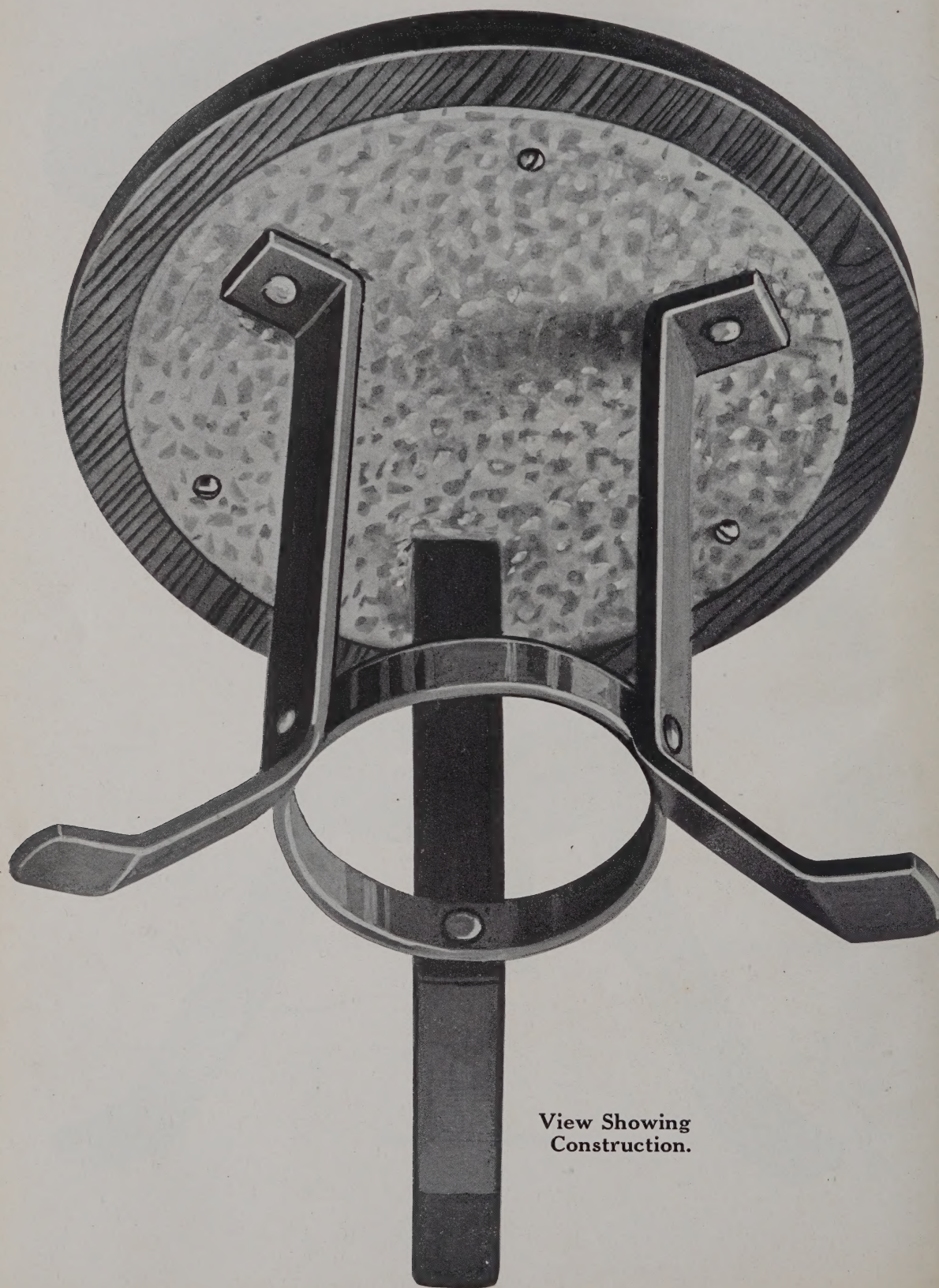
Prices are F. O. B. Ft. Atkinson, Wis.

Table of James Columns, their Capacities and Equivalents in Wood Columns

Diameter	Safe carrying capacity in tons of James Steel Columns					EQUIVALENT TO		
	6 Ft.	7 Ft.	8 Ft.	8½ Ft.	9 Ft.	White Pine	Yellow Pine	Oak
	Length Tons	Length Tons	Length Tons	Length Tons	Length Tons			
3½-in.	9	8½	8¼	8	7½	6"x 6"	5"x5"	5"x5"
4½-in.	14	13½	13	12¾	12½	8"x 8"	6"x8"	6"x8"
5 -in.	20¼	20	19½	19¼	19	8"x10"	8"x8"	8"x8"



James Milk Stool.



View Showing
Construction.

The James Milk Stool

Here's the milk stool that every farmer wants.

It is just the right size and weight, neat and handy, with a comfortable wood seat for warmth in cold winter weather. The wide spread, well braced legs give firm footing. It is sanitary, and easily kept clean.

Built to last for many years—a stool that careless help may slam around without breaking, splitting or bending. It is almost indestructible.

It's a handy little seat to have around for other purposes too—as an extra seat in buggy, wagon or automobile, and for use about the house and barn at tasks that permit sitting down.

If the stool is not perfectly satisfactory, you may return it, and your money will be refunded.

Specifications

LEGS: Of $\frac{1}{4}$ x 1 in. bar steel, tied together by a circle of the same material, well riveted.

SEAT: Of seasoned birch, attached to a galvanized sheet by screws. Seat attached to the legs by bolts passing through legs, galvanized sheet and the wood; bolt heads countersunk in the wood seat. Wood dipped in oil; legs and circle painted.

SIZE: Either 12 inches or 14 inches high. 12-inch height is furnished, unless otherwise specified. Diameter of seat 9 inches; thickness one inch. Weight approximately 5 pounds.

PRICE: Each, \$1.00; 3 for \$2.50; per dozen, \$10.00, F. O. B. Ft. Atkinson, Wis. May be shipped by parcel post, express or freight, as preferred.

James Alley Chains

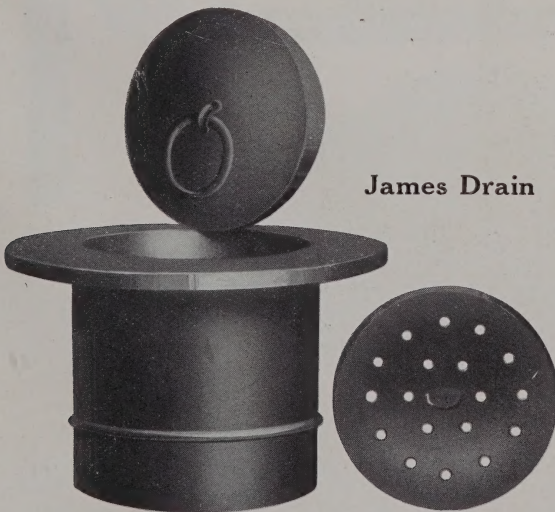
Price, per foot, including fittings, 20c. Specify to what chains are to be attached, length desired, and number of chains required.

James Drain

For convenience in draining the manger and gutters when barn is being flushed or washed out. These drains should not be used for the purpose of removing liquid manure. Special traps of much greater capacity should be purchased for that purpose.

Made of cast iron, with ground brass cap to prevent any leakage, with a cast iron screen, which may be readily removed for cleaning. Hole is four inches in diameter.

Price, each, \$2.50. Prices are F. O. B. Ft. Atkinson, Wis.



James Alley Gate

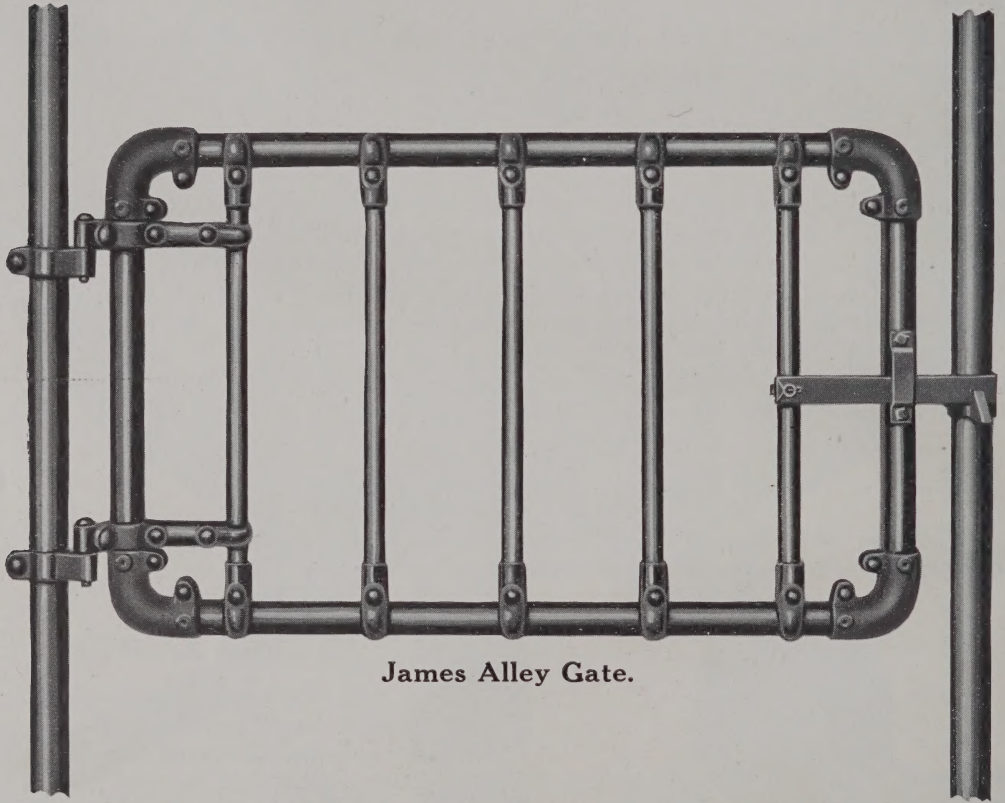
This gate is very convenient and useful to prevent cows getting into the feeding alley, when they are entering the barn or being turned out.

The gate locks when slammed shut, but may be opened quickly and easily. When not needed, gate may be swung out of the way.

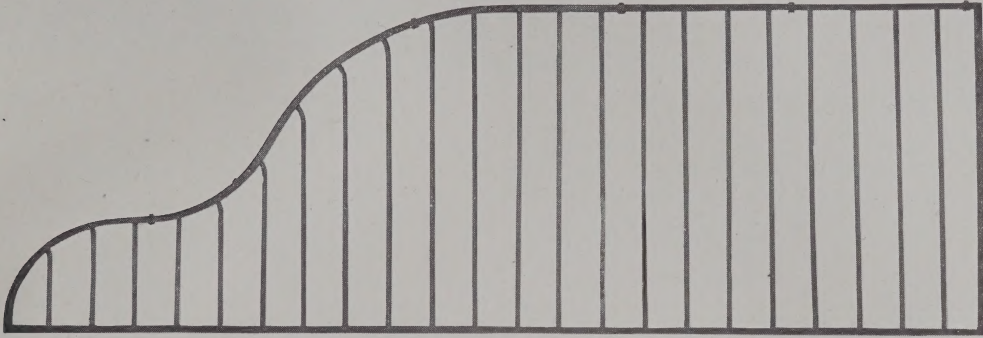
Built of $1\frac{5}{8}$ -in. O. D. steel piping, with $1\frac{1}{16}$ -in. O. D. uprights. Fittings of best malleable. Gravity latch. Malleable offset hinges.

Price, each, size from 3 feet to 4 ft. 6 in. wide, both primer coat of paint and coat of enamel baked on. \$5.00.

Gates furnished special sizes desired, up to ten feet wide.



James Alley Gate.



James Horse Stall Guard

Of channel iron $1\frac{1}{4} \times \frac{1}{2}$ in., with $\frac{1}{2}$ -in. round steel uprights.

Price, either square or O. G. ends, per foot, 70c.

Warren Hay Rack, as shown, page 192.....each, \$5.00

Tilting Grain Box, as shown, page 192.....each, 3.00

Pipe Panel, including all fittings for stall front, not wider than 5 ft., as shown, page 192.....each, 3.00

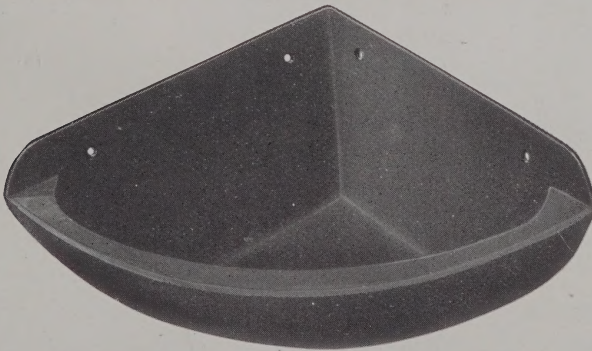
Channel Iron, with anchors, for protecting rear edges of concrete partition, 4-ft. length, as shown, page 192 each, 2.00

Prices on pipe panels and gates for box stalls similar to single stall on page 192, quoted on request.

Above guards, panels, hayracks, and feed boxes supplied at same prices for use in connection with wood stalls.

We are in position to supply columns with channel irons attached for use at the rear of wood horse stall partitions; also channels for use at front of stall partitions. On account of varying heights and lengths, information and prices will be supplied on request.

F. O. B. Ft. Atkinson, Wis.



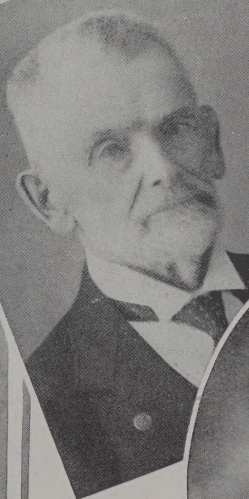
James Corner Feed Box

Cast iron, 9 inches deep by 17 inches by 17 inches. Flange on inside edge, to prevent waste of feed. Each, \$1.25. F. O. B. Ft. Atkinson, Wis.

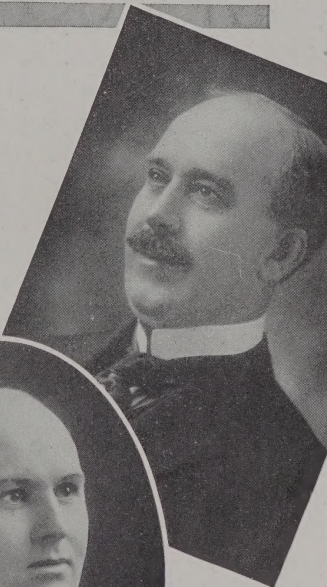


James'
Sanitary Horse Stall

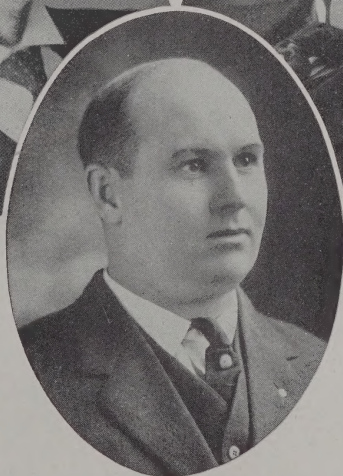
THE MEN BEHIND THE JAMES WAY



C.P.
GOODRICH
Pres.



H.H.
CURTIS
V. Pres.



W.D. JAMES
Secretary and General Manager

Our Golden Rule Guarantee

We Guarantee *not only the quality of material and workmanship, but complete satisfaction with the service of the equipment in actual use if our simple instructions are followed.*

We make this strong guarantee for mutual protection. If there should be a fault in any of our goods, causing dissatisfaction on the part of the buyer, we could not afford to have him keep the equipment.

His dissatisfaction would become our loss. We are, therefore, anxious to return the purchase price to any buyer of our goods who is not fully satisfied if we are at fault in any way.

Remember that this guarantee not only covers the quality of material and workmanship; but the demonstration in your own barn must prove our claims of superiority or we want the goods, and you get your money back if you have paid for them in order to take advantage of the cash discount.

Our Terms *Thirty days net, with bank reference, or 2 per cent off for cash with order. Cash payment gives you a double advantage. The discount of 2 per cent is an item worth saving; and you get your goods more promptly, because we are not called upon to take the time to look up your rating and references.*

The guarantee is just as good with your cash in our hands as with our goods in your hands, and you are the gainer in the cash transaction.

Our Selling Plan *As our terms indicate, we handle all business direct from our factories, if we haven't a representative in your locality.*

This guarantee goes with every equipment, no matter whether purchased from us direct or through our representative. We make it good direct to you in either case.

JAMES MANUFACTURING CO.

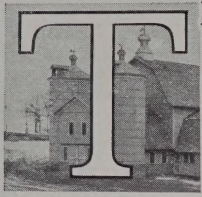
C. P. Goodrich
President

H. N. Curtis
Vice-President

H. D. James
Secretary & General Manager

JAMES

Introducing the Men Behind the James Way



HIS catalog tells the story of the profit making James Way of caring for dairy cattle in the barn—points out how sanitary conditions may be maintained—how feed may be saved—how losses through wasteful methods of doing the barn-work may be stopped.

Some of the statements may seem to the uninformed almost too good to be true; and that you may know something of the men who make these statements and who stand back of the James "Golden Rule" guarantee, we ask you to read the brief history of these men which follows, and of the concern whose affairs they direct.

Read, too, the statements of the Fort Atkinson banks, the letters from satisfied customers which appear in various sections of the book, and glance over the partial list of well known men who have honored us with their business.

Then study the pictures which appear on pages 200 and 201 showing the remarkable growth of the business.

Having done this, you will not doubt us when we say that we are in this business with a sincere desire to aid in the upbuilding of the dairy industry of the country and to help the average dairy farmer improve conditions in his barn and secure greater money rewards for his labor.

The Men

The President of the company is Charles Perry Goodrich, well known to dairymen throughout the United States as having devoted a long life to the dairy business and to the improvement of the dairy conditions.

His work as an instructor and lecturer in farmers' institutes in many states, and as a writer on dairy subjects, has made his name familiar to those interested in dairying. He is one of the few men in America who have received a testimonial from the University of Wisconsin on account of "Services rendered to agriculture and related branches."

As indicated in the testimonial, Mr. Goodrich's services were along dairy lines; and as the president of the James Mfg. Co., he is still in the work of bettering conditions in that great industry.

Mr. Goodrich is also Vice-President of the Northwestern Mfg. Co., known everywhere for their high standing in the manufacture of superior buggies and carriages.

Mr. H. H. Curtis, our Vice-President, is engaged in large business enterprises and is also in the dairy business in a practical way, operating a dairy farm near Ft. Atkinson and dealing in registered and grade dairy cattle.

CITIZENS STATE BANK

C. J. WARD, PRESIDENT
G. W. KINDLIN, VICE-PRESIDENT

O. W. DONKLE, CASHIER
G. E. WARD, ASSISTANT CASHIER

FORT ATKINSON SAVINGS BANK

CAPITAL \$40,000.00

FORT ATKINSON, WIS.

March 1st, 1914.

To the Public:-

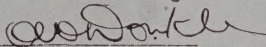
The James Manufacturing Company is one of the most enterprising concerns in our city, and we understand is the largest exclusive barn equipment manufacturer in the world. It was organized a little over seven years ago.

This Company has had a very remarkable growth, a considerable addition to its plant having been required almost every year. It is now doing business throughout the United States and in many foreign countries, and from all sources we hear only words of commendation for the Company, and its methods of business.

The management is well and favorably regarded in our city, and is composed of men of sterling worth, honor and integrity.

Respectfully,

Fort Atkinson Savings Bank.



Cashier.

This bank has fifty farmers as part owners.

He is well known at home and abroad as a successful business man in the best sense of the term.

Mr. W. D. James, our Secretary and General Manager, scarcely needs an introduction to any dairyman who is at all familiar with current improvements in dairy barn building and equipment.

His name is associated inseparably with progress in dairy barn architecture and in methods of handling dairy barn work. He is regarded by leading dairymen throughout the country as an authority on dairy barn construction.

The barn adopted some years ago by the Wisconsin State Board of Agriculture as the model dairy barn at the Wisconsin State Fair Grounds, is familiar to all who have attended that fair and to many others who are readers of the dairy and agricultural press.

Mr. James' plans were chosen as the best from those submitted in open competition by architects and other experts.

In the years that have passed since this first public recognition of the worth of his ideas in barn designing, Mr. James has designed hundreds of the largest and most practical dairy barns of the country; thousands of other barns, both large and small, have been built from plans drawn under his direction; and other thousands of barns have been remodeled in accordance with his suggestions and plans.

Prominent dairymen from coast to coast seek his services. It is the good fortune of the patrons of this concern that Mr. James is associated with us, for every buyer of our barn equipment is given the benefit of his special knowledge and long experience in barn designing.

Mr. James was born and raised on a dairy farm; and as a boy and man became thoroughly familiar with the business of dairying. His genius as an inventor has solved and is solving many of the problems and difficulties of the business, making the life of the average dairymen easier and dairy profits bigger.

The Company

Although the company is comparatively young, having been organized under the laws of Wisconsin in 1906, its growth has been very rapid, until now it has an authorized capital stock of \$200,000.00.

The real beginning, however, was back on the James farm near Wales, Wis., where the first James stalls were made in the old blacksmith shop on the farm. Later, more stalls were made in the village near by.

One day it happened that Mr. C. P. Goodrich saw the "new-fangled" stall in use on a farm where he was visiting, and so impressed was he with its sanitary features and labor saving devices that he drove over to see the inventor.

As a result of the acquaintance thus begun, a company was organized to handle the proposition on a larger scale and the business moved to Ft. Atkinson.

CAPITAL, \$75,000

THE FIRST NATIONAL BANK

No. 167
ORGANIZED 1863

SURPLUS, \$15,000

L. B. CARWELL, PRESIDENT
L. B. CARWELL, JR., CASHIER
J. F. SCHREINER, ASSISTANT CASHIER

FORT ATKINSON, WIS.

March 1st, 1914.

To Whom It May Concern:-

We take pleasure in saying that the James Manufacturing Company is and has been a valued customer of ours since its organization seven years ago.

We are personally acquainted with the directors of the Company, as well as the gentleman in charge of the active management of the business, and we know them to be men who take pride in carrying out their promises and agreements to the letter.

The Secretary and General Manager, Mr. W. D. James, was born and brought up on a dairy farm and has throughout his life been engaged in the dairy business or in business closely related to dairy farming.

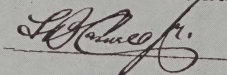
The men managing the business seem to have an unusual understanding of the essentials in the care of dairy cattle; and have a wide reputation as experts in designing sanitary dairy barns.

It is a recognized fact by those who are in position to know that the James Manufacturing Company has done a great work towards bettering the conditions of dairying in general throughout the United States.

We very gladly recommend this Company as reliable and worthy of confidence in every way.

Respectfully yours,

First National Bank of Fort Atkinson.



Cashier.

At this stage of the history of the business, one man constituted the entire factory force, one girl handled the office work and the manager, Mr. James, worked part time in the shop, part time in the office and part time out on the road selling the product of the little factory.

Progressive dairymen quickly realized the value of equipment that would help keep their barns clean and that would lessen barnwork; and within a couple of years a very satisfactory little business was established.

From that time on, however, the business grew so fast that it was difficult to keep pace with it in shop and office. Scarcely a year has gone by that additions to the factory buildings have not been made to take care of the increased output.

From year to year, huge machines were added to the plant to take the place of hand work, to make more perfect the workmanship and to lessen the floor space needed; nevertheless each year more men and a bigger factory were required.

From the very first "Service" has been the keynote of the business.

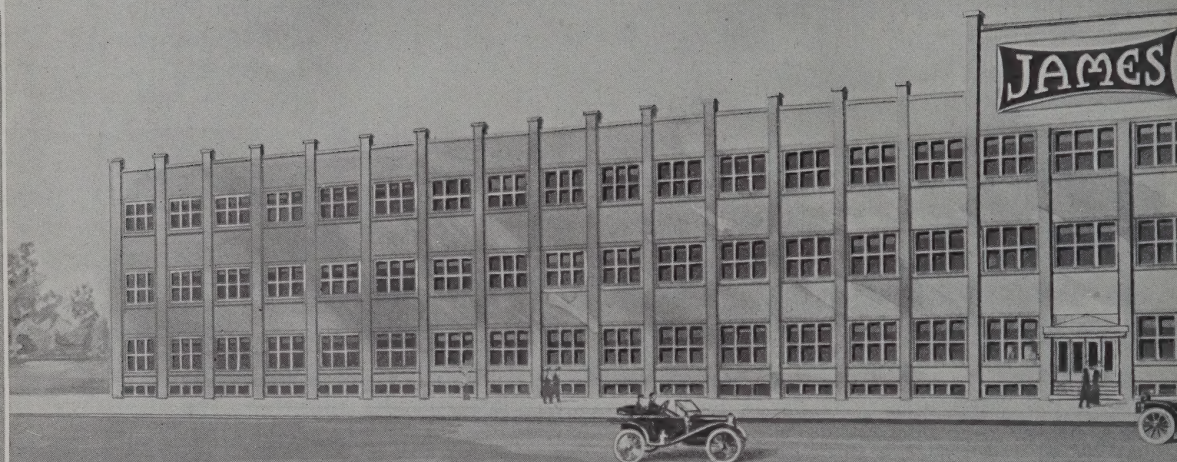
Not only has Mr. James given much time and thought to working out new inventions that would lessen labor and improve sanitary conditions in dairy barns; but under his direction, other men with inventive genius and experience in the dairy business have been developing and testing out ideas that promise a betterment in barn methods.

In connection with this work, an experimental department was established some years ago. Before new equipment is offered to the public, it is put through many tests to determine its practical worth and strength; the final test being actual use in severe service in the James Experimental Barn, a picture of which appears on page 184.

When any James equipment or device is offered, you may be sure that it has been proven satisfactory in actual use and that it will fulfill perfectly all requirements. James Equipment is not built on theory.

An Architectural Department was early established for the benefit of customers and prospective buyers of James Equipment, with a staff of competent architects and draftsmen. This makes it possible for us to give everyone the benefit of Mr. James' experience and special knowledge of what is best and most practical in barn building.

If you intend to build a barn, or remodel one, you are cordially invited to come to Ft. Atkinson, visit the Experimental Barn and other barns in this vicinity then talk over your plans with our Architectural staff. Perhaps they can help you just as they have helped thousands of other dairymen. In any event, you will be under no obligation to buy of us—we shall be glad to give you the benefit of our advice and counsel on barn planning whether you buy James Equipment or not.



Blacksmith shop on the James
Farm near Wales, Wis.

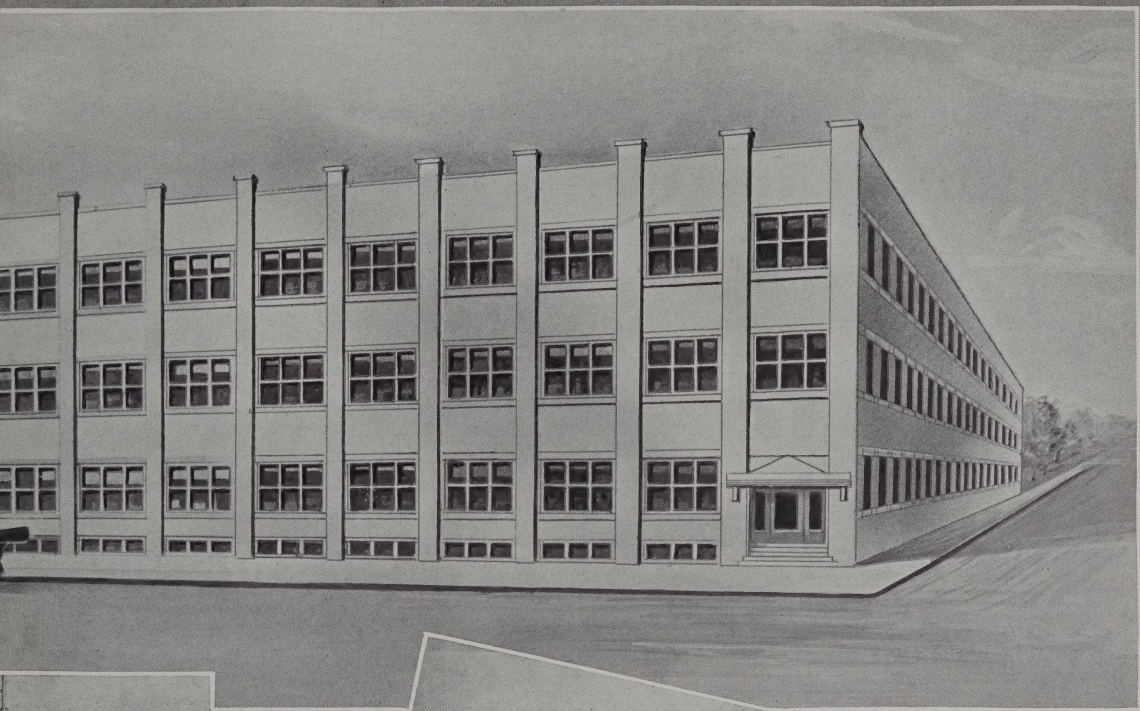
Here is where W.D. James
and his father built the
first James stall
in 1906



Officers and Office Employees
1913



Factory and



employees



Factory at Fort Atkinson
1907



Factory Employees
1913

Partial List of Users of James Equipment

Well Known Business Men

ALABAMA	Birmingham	Robt. Jemison, Jr.	Real Estate
CONNECTICUT	Rockville	A. N. Belding	Silk Manufacturer
	Branford	Morton Plant, Prop.,	Branford Farms
ILLINOIS	Chicago	R. W. Sears	Sears Roebuck & Co.
	Chicago	Union Stockyards &	Transfer Co.
	Chicago	H. W. Gossard	Gossard Corsets
	Chicago	Ralph Wilder	Cartoonist
	Bartlett	S. P. Stevens, Reid, Murdock & Co.,	Chicago
	Oregon	Col. F. O. Lowden	
INDIANA	Martinsville	Van Camp Packing Co.	
IOWA	Davenport	C. Shuler	Pres. Iowa Natl. Bank
	Ft. Dodge	L. E. Armstrong	Pres. Plymouth Gypsum Co.
MARYLAND	Hagerstown	M. P. Moeller	Organ Manufacturer
MASSACHUSETTS	Boston	Maxwell Norman	
	Boston	C. H. Jones, Pres't.	Commonwealth Shoe Co.
	Oldtown	C. A. Gray	Oldtown Canoe Co.
	Holyoke	W. F. Whiting	Paper Manufacturer
	Whitinsville	Arthur F. Whitin	Whitin Mfg. Co.
MICHIGAN	Grand Rapids	Irving J. Bissell	Bissell Carpet Sweeper Co.
	Battle Creek	W. W. Wentworth	Battle Creek Sanitarium
	Detroit	W. E. Flanders	Maxwell Motor Car Co.
MINNESOTA	St. Paul	H. H. Chapman	Chapman Cigar Co.
	St. Paul	J. J. Hill	Gt. Northern Ry.
MONTANA	Butte	The Hennessey Mercantile Co.	
	Wibaux	W. A. Orgain Co.	
MISSOURI	St. Louis	August A. Busch	Brewer
	St. Louis	Wm. J. Lemp, Jr.	Brewer
	St. Louis	E. A. Lemp	Brewer
NEW YORK	Buffalo	Oliver Cabana	"Liquid Veneer"
	East Aurora	Elbert Hubbard	The Philistine & The Fra
	Binghamton	L. M. Bowers	Chairman Exec. Com. Col-
			orado Steel & Iron Co.
	Ogdensburg	Frederick Gaus	Brown-Gaus Shoe Co.
	Rochester	Geo. J. French	R. T. French Baking
			Powder Co.
	Auburn	H. R. Wait Co.	Furniture
	Utica	Quinten McAdam	Woolen Mfgr.
		J. B. Stetson	Stetson Hats
	New York City	W. R. Wood	Prop. Hotel Gotham
	New York City	A. L. Page & Sons	"Vapo-Cresoline"
OHIO	Akron	F. A. Seiberling	Goodyear Rubber Co.
	Barberton	Ohio C. Barber	Pres. Diamond Match Co.
	Cincinnati	Harry Hartke	Acme Veneer Co.
	Cincinnati	Chas. Moeser	Pickering Hdw. Co.
	Columbus	C. B. Wolfe	
	Cleveland	Frank Rockefeller	

PENNSYLVANIA	Hershey	Hershey Chocolate Co.	
	West Chester	P. M. Sharples Separator Co.	
	Kennet Sq.	Edwin Phillips	Pres. American Road Machinery Co.
	Chadds Ford Jct.	A. P. Irwin	Real Estate
	Villa Nova	Louis R. Page	Coal Operator
	Norristown	A. F. Bornot	Dyer
	Scranton	B. H. Throop	
	Philadelphia	Jas. Logan Fisher	Banker
	Philadelphia	D. W. Diedrick	Flour
	Scranton	Geo. Stevenson	Mining Engineer
WISCONSIN	Scranton	Thos. E. Jones	International Correspondence Schools
	Honesdale	T. B. Clarke	Mfr. Cut Glass
	Williamsport	W. W. Jackson	United Farms Corporation
	Yardley	V. J. Humbrecht	Real Estate
	Milwaukee	E. L. Philipp	Governor of Wisconsin
	Eau Claire	W. K. Coffin	Pres. Eau Claire Nat. Bk.
	Milwaukee	Fred Pabst	Brewer
	Milwaukee	Gustav Pabst	Brewer
	Ft. Atkinson	W. D. Hoard	(Ex-Gov.) Publisher
	Kenosha	C. C. Allen	Black Cat Hosiery
	Delavan	E. J. Tilden	Libby, McNeil & Libby

Prominent Professional Men

ILLINOIS	Dolton	Dr. C. H. Thomson	
	Hegewisch	"Bat" Nelson	Pugilist
MARYLAND	Baltimore	Dr. J. I. France	
	Cambridge	C. H. Basshore	
KANSAS	Topeka	J. W. Bigger	
	Topeka	O. S. Walker	
MINNESOTA	Brainerd	Dr. J. L. Camp	
	Montgomery	Dr. James McKeon	
	Rochester	Drs. Mayo	
MISSOURI	Maysville	S. W. Cooke & Sons	
	Syracuse	Leroy B. Williams	Lawyer
NEW YORK	Syracuse	W. A. Estabrook	Lawyer
	Syracuse	John B. Tuttle	Lawyer
	Peekskill	Hon. J. W. Husted	
	Rochester	D. M. Beach	Lawyer
	Rochester	Howard Sneck	Lawyer
	Skaneateles	Geo. B. Hiscock	Lawyer
	Mohawk	Theo. D. Robinson	
	Utica	W. H. Udall	Cornell University
	Sherburne	Kutbach & Son	
	Sherman	R. H. Ballinger	Ex-Sec'y of the Interior
NEBRASKA	Lincoln	H. A. Young	
NEW HAMPSHIRE	Peterboro	R. P. Bass	Ex-Governor
	George Mills	Billy B. Van	Actor

PENNSYLVANIA	West Chester	Herman Hoops	
	Newton Sq.	Thos. G. Ashton	Lawyer
	West Chester	Dr. J. K. Mitchell	
	Waverly	Dr. H. B. Hand	
	Ebensburg	P. J. Little	Lawyer
	Johnstown	John H. Stephens	Lawyer
	Easton	Jos. D. F. Junkin	
	Spring Grove	W. L. Glatfelter	
	York	H. N. Forrey	
	Canton	L. M. Marble	
	So. Montrose	Percy Balentine	
	Williamsport	J. Roman Way	
OKLAHOMA	Okmulgee	W. Thornbergh	
RHODE ISLAND	Warwick	Nelson W. Aldrich	Lawyer, U. S. Senator
SOUTH CAROLINA	Sumter	Dr. Archie China	
WISCONSIN	Muscoda	Dr. C. R. Pickering	

Religious Institutions

ILLINOIS	Techny	Society of the Divine Word
	Des Plaines	St. Mary's North Farm
INDIANA	South Bend	Notre Dame University
KANSAS	St. Marys	St. Mary's Academy
MASSACHUSETTS	Wellesleys Hills	Academy of the Assumption
MISSOURI	Conception	Conception Abbey
	Glencoe	La Salle Institute
NEW YORK	Hawthorne	Jewish Aid and Protectory
PENNSYLVANIA	Girard	Mission Home
WISCONSIN	Elm Grove	Sisters of Notre Dame
	Jefferson	St. Coleta's School
	St. Francis	Sisters of St. Francis
	Corliss	St. Catherine Convent

Public Institutions

INDIANA	Ft. Wayne	Indiana Home and Training School for Feeble-Minded Youth
	Crown Point	Lake County Poor Farm
	Evansville	Southern Hospital
	Madison	Southeastern Hospital
	Rockville	Indiana Tuberculosis Hospital
ILLINOIS	Chester	State Hospital
	Peoria	State Hospital
KANSAS	Topeka	State Hospital
	Ossawatomie	State Hospital
	Topeka	Industrial Educational Institute
KENTUCKY	Berea	Berea College
	Berea	Lincoln Institute
LOUISIANA	Opelousa	State Normal School

MASSACHUSETTS	Shirley	Industrial School for Boys
	Palmer	Monson State Hospital
	Lancaster	Industrial School for Girls
	Westfield	State Hospital
MAINE	Augusta	State Hospital
	Augusta	School for Feeble-Minded
MARYLAND	Baltimore	City of Baltimore
MICHIGAN	Iron Mountain	Dickinson County Hospital
	Howell	State Tuberculosis Sanitarium
	Ontonagon	Ontonagon County Hospital
	Lapeer	Home and Training School
MINNESOTA	Northfield	St. Olaf College
MISSOURI	Liberty	Odd Fellows Home
MONTANA	Bozeman	Montana School for Blind
NEW YORK	Oxford	Women's Relief Corps Home
	Syracuse	Syracuse University
	Yorktown Hts.	State Training School for Boys
	Binghampton	Broome County Almshouse
	Yaphawk, L. I.	Suffolk County Poor Farm
NEBRASKA	Ingleside	Nebraska State Hospital
NEW JERSEY	Vineland	Training School
	Syracuse	Syracuse University
	Morristown	Morristown Hospital
OHIO	Cleveland	Cooley Farms, City of Cleveland
	Mansfield	Ohio State Reformatory
	Athens	State Hospital
	Steubenville	Jefferson County Infirmary
PENNSYLVANIA	Philadelphia	City of Philadelphia
	Meadville	Crawford County Poor Farm
	Retreat	Central Poor District of Luzerne County
	Doylestown	National Farm School
SOUTH CAROLINA	Clemson	Clemson College
UTAH	Salt Lake City	Utah State Penitentiary
	Provo	State Mental Hospital
VIRGINIA	Lassiter	State Farm
WEST VIRGINIA	Spencer	Second Hospital for Insane
WISCONSIN	Chippewa Falls	State Hospital
	Alma Center	Trempealeau County Hospital
	Mendota	State Hospital
	Marshfield	Wood County Insane Asylum
	Racine	Racine County Hospital
	Waukesha	Industrial School for Boys
	Waukesha	Waukesha County Insane Asylum
	Waupun	State Penitentiary
	Wauwatosa	Hospital for Chronic Insane
	Wauwatosa	Milwaukee County Hospital
	Verona	Dane County Hospital

Federal Institutions

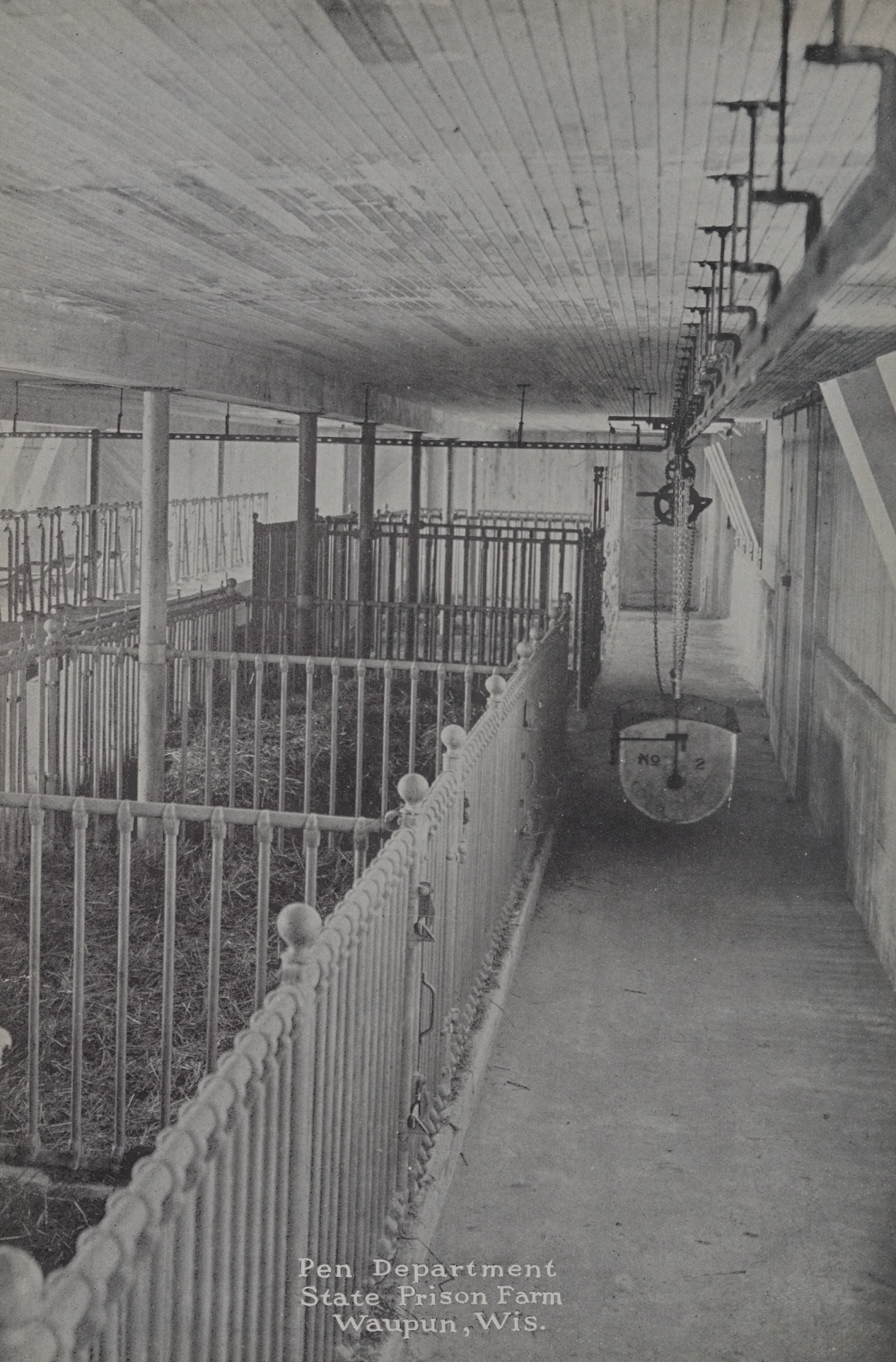
OKLAHOMA	Millerton	Wheelock Indian Academy
MARYLAND	Annapolis	U. S. Naval Academy
	Beltsville	U. S. Experimental Farm

MINNESOTA	White Earth	Indian School
SOUTH DAKOTA	Flandreau	Indian School
	Crow Creek	Crow Creek Indian Agency
WISCONSIN	Tomah	Tomah Indian School
	Keshena	Keshena Indian Agency

Dairymen and Breeders

CONNECTICUT	Middleton	H. O. Daniels	
	Chapinville	Scoville Bros.	Grassland Farms
ILLINOIS	Hampshire	T. E. Getzelman	Holstein Breeder
	Algonquin	R. E. Haeger	Guernsey Breeder
	Elgin	A. H. McCormick	
	Elgin	C. E. Chaxpell	
	Elgin	Preston Bellows	
	Davis	Wesley M. Sarver	
	Elgin	Smith Youngs	Holstein Breeder
	Lake Forest	Mrs. Scott Durand	
	Champaign	Capt. J. R. Trevett	
INDIANA	Brooklyn	Black & Adams	Jersey Breeders
	Petersburg	W. E. Lamb	Guernseys
	No. Manchester	D. C. Harter	
	Crown Point	C. E. Benjamin	
IOWA	Mitchellville	W. P. McDonald	
KANSAS	Denison	David Coleman	
KENTUCKY	Jenkins	J. W. Ellis	Elkhorn Dairy
MASSACHUSETTS	Worcester	W. J. Woods	
	Boston	Geo. Ellis	Publisher
	Framingham	N. P. Bowditch	
	Worcester	A. S. & M. W. Clements	
NEW YORK	White Plains	Howard Willetts	Gedney Farms
	Earlville	Borden Condensed Milk Co.	
	Edmeston	Borden Condensed Milk Co.	
	Walkill	Borden Home Farms	
	New York	Sheffield Farms	Slawson-Decker Co.
	Sherman	Mohawk Condensed Milk Co.	
	Binghamton	Wm. Hotaling (Mgr. Hillcrest Farm)	
	Salamanca	A. T. Fanchier	Furniture Mfr.
	Ogdensburg	Major Wm. H. Daniels	
	Albany	Edw. Van Alstyne	
	Montgomery	Julius Schmidt	Pres. Orange Co. Holstein Breeders Assn.
	La Grangeville	L. L. Lawson	
	Millerton	F. A. Hotchkiss	
	Bedford Hills	Henry W. Howe (Wm. Sanders, Mgr.)	
	Springfield Center	Frank M. Smith	Guernseys
	Coxsackie	Rev. Lewis Lampman	
	Buffalo	Fred S. Knaisch	Certified Milk
	Heuvelton	E. H. Dollar	Pres. N. Y. State Dairymen's Assn.
	Hamilton	A. A. Hartshorn	Pres. Holstein Association of America

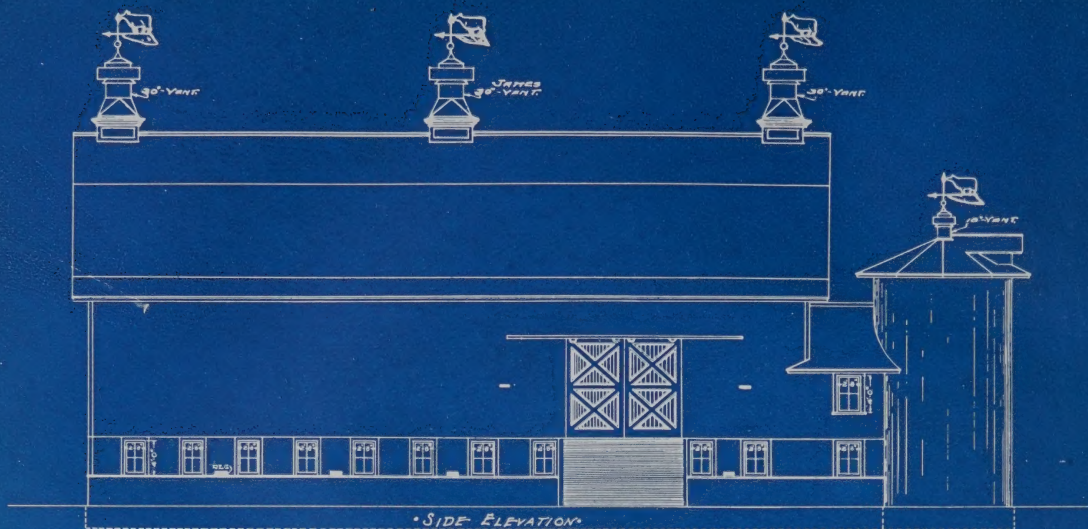
	Lawna	E. M. Hastings	
	Liverpool	Stevens Bros. Co.	
	Middletown	John Arfman	Holstein Breeder
	Clinton	Francis Jones	
	New Woodstock	J. A. Staunton & Son	Holstein Breeder
	Carthage	Strickland Bros.	
	Sayville, L. I.	Wm. Slayter	Holstein Breeder
	Carthage	Fred Anderson	Guernsey Breeder
	Winthrop	Geo. A. Baird	Holstein Breeder
	Watertown	Geo. N. Smith	
	Syracuse	Harry McClelland	
MICHIGAN	Saginaw	Frank Plum	Registered Guernseys
	Mason	Geo. Gillespie	Holstein Breeder
	Lansing	H. W. Wigman	Guernsey Breeder
	Fowler	Dr. Ernest Schemer	
NEW JERSEY	Plainsboro	Walker Gordon Laboratories	
OHIO	Canal Dover	F. A. Alleshouse	
	New London	Sam Lane (Walnut Valley Stock Farm)	
	Louisville	Lawrence Paumier	Holstein Breeder
	Wadsworth	D. K. Stover	
PENNSYLVANIA	Elizabethtown	S. G. Graybill	Holstein Breeder
	Waverly	Geo. E. Stevenson & Sons	
	Center Sq.	H. C. Woods	
	Bryn Mawr	Sabin W. Colton	
	Wynnewood	Miss Mary K. Gibson	
	Coopersburg	T. S. Cooper & Son	
	West Chester	G. L. Jones	
	Kingsley	W. W. Wilmarth & Son, Certified Milk	
	Lancaster	J. S. Leed	
	Pottstown	J. H. Halderman	
	Richlandtown	Fred Neahmand	
	Royersford	Mingo Stock Farm	
	Troy	Austin Leonard & Son	Jerseys
	Worcester	Frank Landis	
	Belfry	Harvey-Murphy	
TEXAS	Washington Sq.	B. F. Murphy	
	Falfurrias	Ed. C. Lasater	Jersey Breeder
	Kingsville	Kings Ranch	
	Marshall	C. Mathewson	
SOUTH DAKOTA	Bruce	Packham & Gill	
VERMONT	Hardwick	T. G. Bronson	
WISCONSIN	Elkhorn	John Harris	
	Burlington	Burlington Condensed Milk Co.	
	Racine	Horlick's Malted Milk Company	
	Blanchardville	Frank Darrah	
	Waukesha	S. A. Baird & Son	
	Waukesha	Dr. David Roberts	
	Waukesha	Browne & McMillan	
	Waukesha	Fruit Bros.	
	Waukesha	J. L. Williams	
	Waukesha	R. W. Rowlands	
	Waukesha	R. G. Morey	
WASHINGTON	Pacific Coast	Condensed Milk Co. (Carnation Milk)	
MARYLAND	Wilmington	Coleman Du Pont	



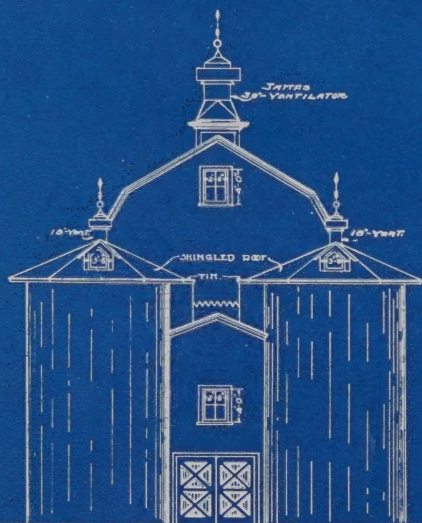
Pen Department
State Prison Farm
Waupun, Wis.

BUILDING THE DAIRY BARN

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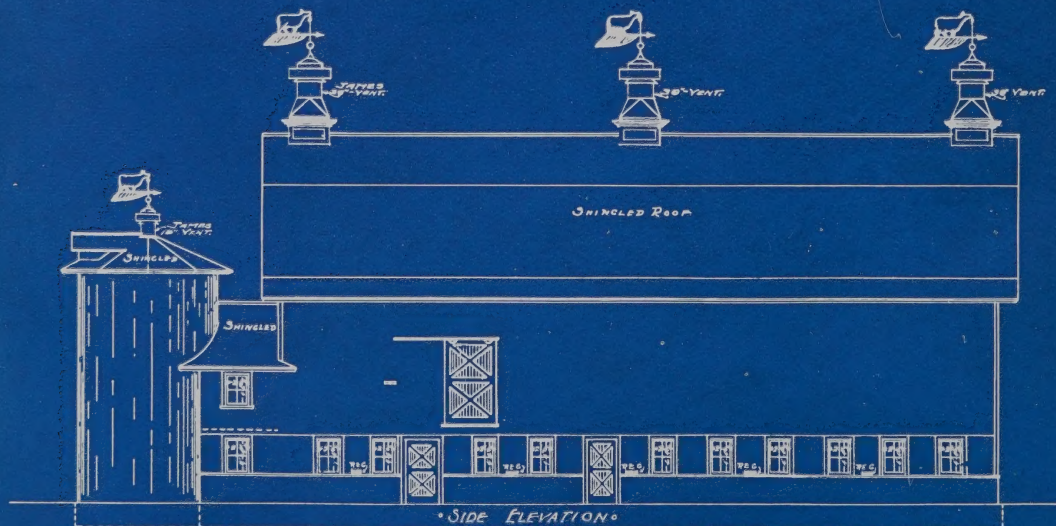
•SIDE ELEVATION•



•REAR ELEVATION•

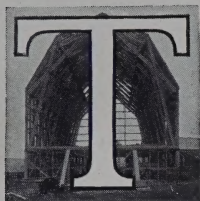


•FRONT ELEVATION•



•SIDE ELEVATION•

Building a Dairy Barn



HE proper and economical erection of a dairy barn requires greater foresight and more careful planning than is usually given the subject.

The dairy barn is your factory—your workshop—in use almost daily throughout each year.

If the barn is not built right—if it is not correctly planned—it may result in losing money for you every day. A barn once built is not easily moved or altered in size, shape or arrangement; hence the vital importance of making certain that the barn is correctly designed before it is built.

Mistakes in building have a very unpleasant habit of forcing themselves upon a man's attention after it is too late to rectify them. The most thorough investigation, study and thought before building is necessary to forestall errors that would later prove extremely expensive.

Wrong location of posts—inconvenient arrangement of feed bins and feed rooms—incorrect arrangement of carrier tracking—or the wrong design of framing may compel you to take more steps, do more work, and pay out more money for help each day throughout the life of the barn.

A silo or a door in the wrong place—poor arrangement of equipment—ventilating intakes or outtakes improperly installed—mistakes in size of platforms, gutters, passages and alleys—even these small items may be a source of daily expense.

A barn correctly designed and built is right in every little detail—it is a constant money maker, because it will save time, labor and feed each day.

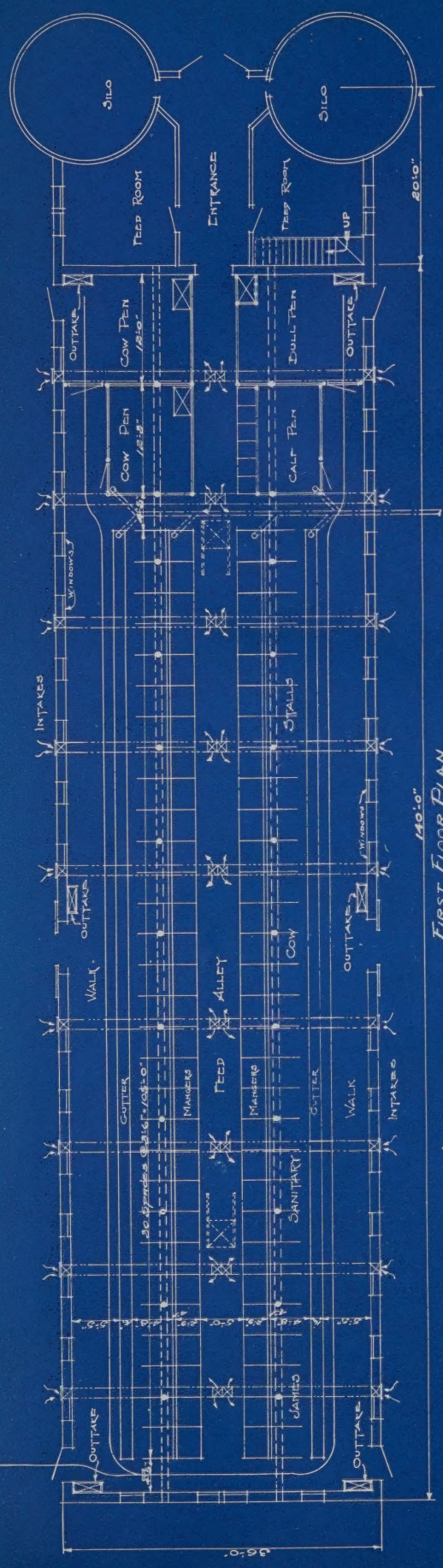
It will add to the value of your farm, and get you a better price for it when you want to sell, for the average farm buyer looks at the improvements first. The farm with a convenient practical barn will sell at a higher price than another farm of equal fertility, with a more costly but inconvenient and poorly arranged barn.

The right plans will not only give you a better barn from the standpoint of looks, from the standpoint of convenience in handling the daily chores, and in comfort for the cows—but it need cost you no more than the same size barn poorly designed and inconveniently arranged.

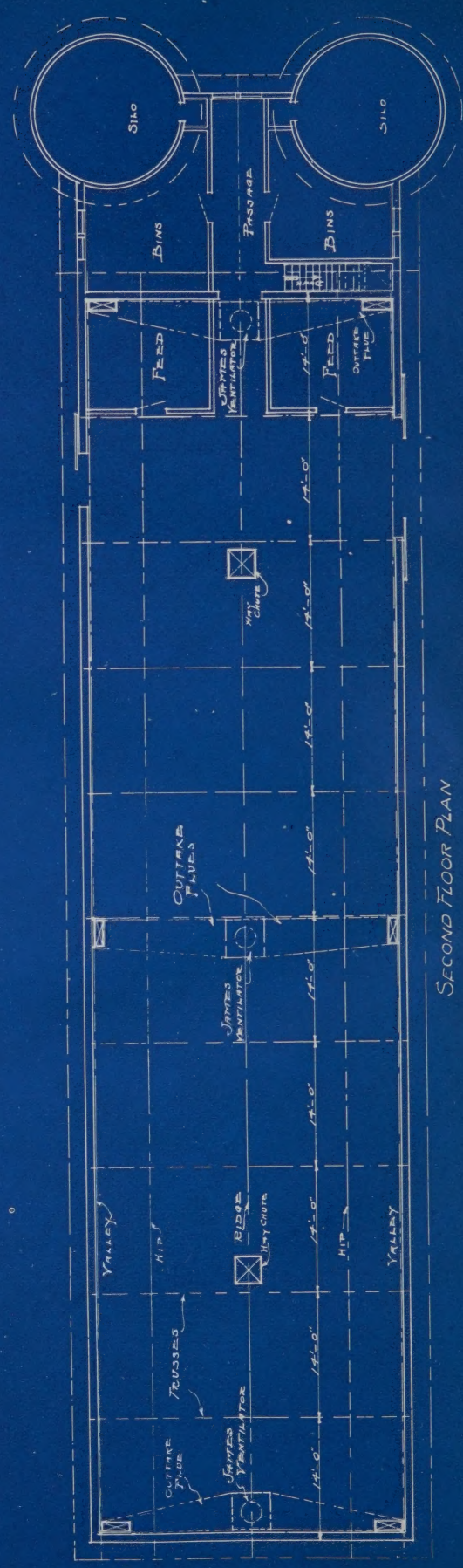
A good stable also adds to the selling value of your cows because it shows them off better, makes them healthier, finer looking, and better producers.

If you intend to build a new barn or remodel an old one, you are of course anxious to avoid the expensive mistakes of poor plans, carelessly and hastily made.

This can only be done by studying the entire matter carefully for yourself, and getting all the suggestions and help you can from others who have had wider experience in the planning of dairy buildings.



FIRST FLOOR PLAN



SECOND FLOOR PLAN

The writer and associates have not only designed hundreds of the practical dairy barns of the country; but thousands of barn plans are being submitted to them yearly for their criticism and suggestions. Because of this wide experience, some of the things we have learned regarding barn building may be of interest and help in the planning of your barn. This book is published in the hope that it may help you and other dairymen to secure better barns for the money you have to invest.

There are many points on which dairymen differ with regard to barn construction—differing conditions of climate, territory and purpose, making each barn almost an individual proposition.

The barn that meets the needs of one man in Wisconsin may be totally unsuited to the requirements of his next door neighbor or to the needs of a farmer in Tennessee.

The amount of money available for building, the kind of dairy farming to be carried on, the site, character of building materials most convenient, and many other points known only to the owner himself, require consideration. Nevertheless, there are certain fundamental conditions common to most dairy barns, and with the above in mind it is our purpose to give general information that is most interesting to prospective builders.

Fundamentals

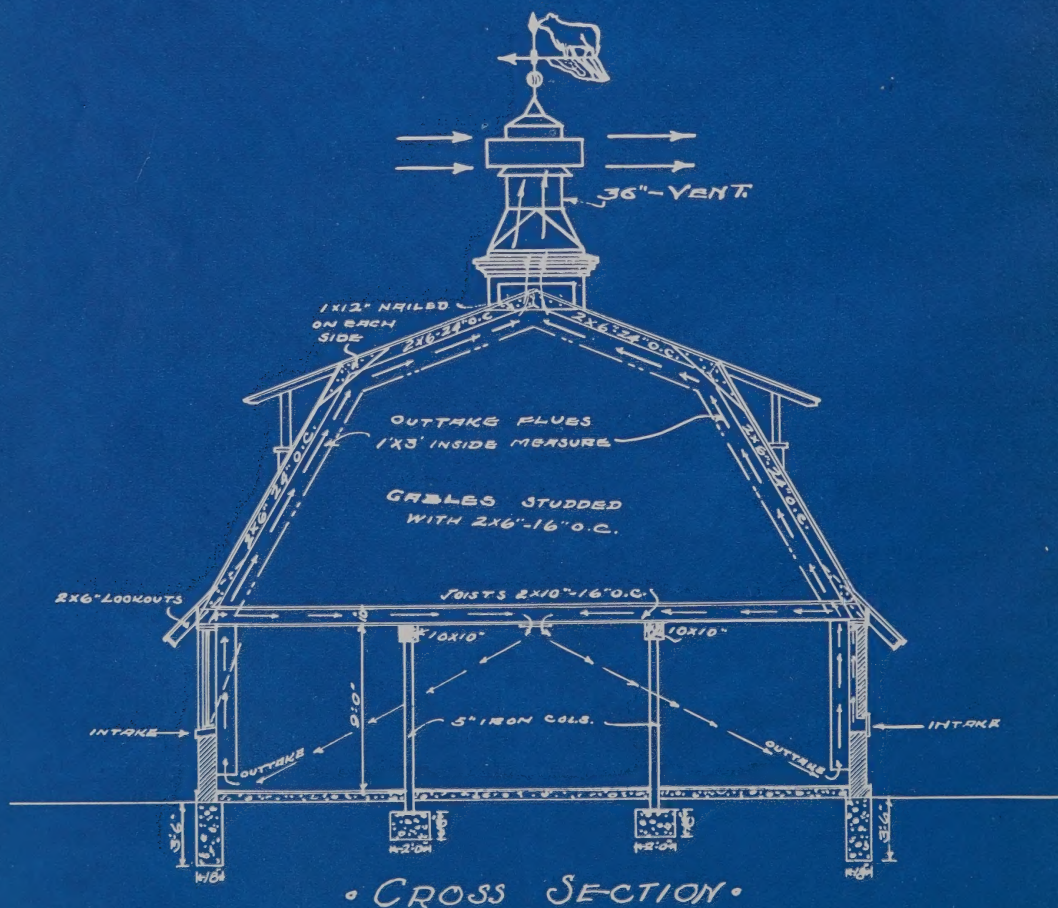
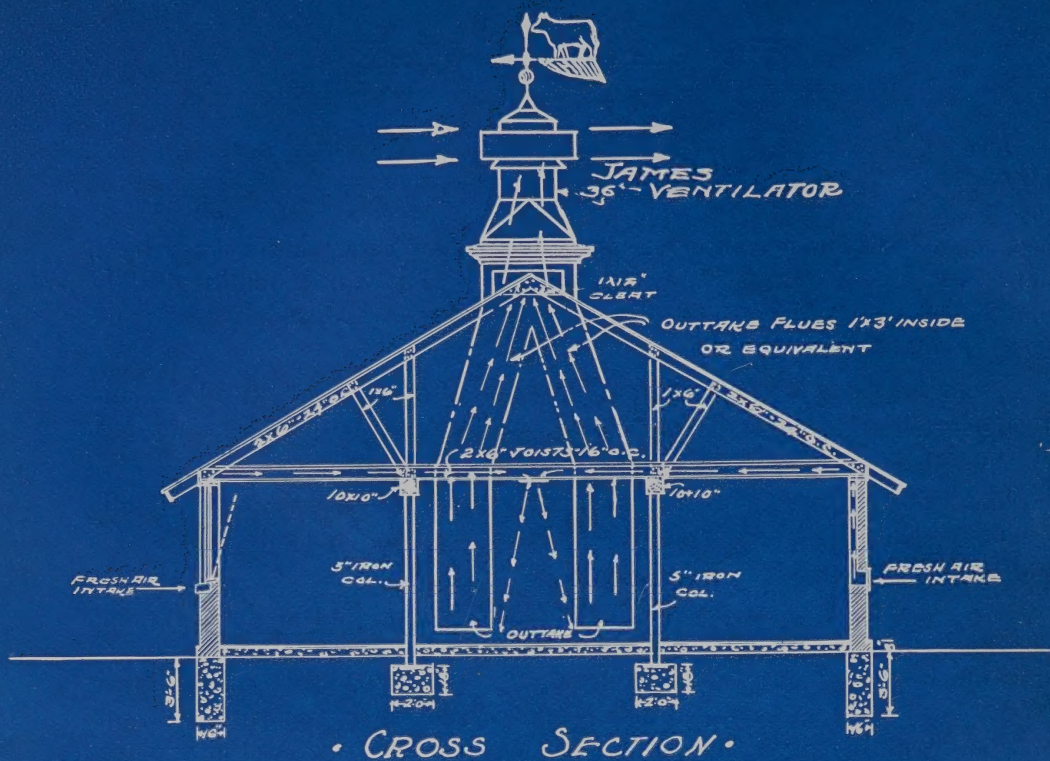
In order that the dairy barn may become as big a profit maker as possible, certain fundamental elements must be remembered. The most important items to be considered are cleanliness; cow comfort and cow health; convenience for the workmen in handling the daily chores; and economy of construction.

The dairy barn is a place where human food is produced. For the protection of the public health, and for the well-being and comfort of your cows—as well as to meet the requirements of those who buy your products—the first great essential to be kept in mind is cleanliness.

By use of the proper construction, and by carefully planning the arrangement of the stable, this point may be cared for without excessive increase in cost of building, or in cost of operating the plant.

Since contented, healthy cows produce more milk, the things that please the cow and insure her health and comfort must likewise receive thoughtful attention.

If the arrangement of the barn is planned rightly, plentiful lighting, abundant ventilation and easy disposal of the litter will be provided—all floor space will be used economically and to the best advantage—and the number of steps necessary in doing the daily chores will be reduced to the minimum.



In many a case careful planning has cut the labor of caring for the cows squarely in half, at the same time keeping the stock cleaner, healthier, more contented, and the barn in a more sanitary condition.

To secure these desirable results the cost of the barn need not be extravagant; what the building will cost depends more than all else on the care with which it is planned in advance and the thought that is given to the actual construction. In our experience it has been no uncommon thing to see one man with the "know how" build a barn at 20 or 30 per cent less cost than another, although the barn accommodates the same number of cows; and the first man gets a handsomer building, more conveniently and practically arranged.

Regardless of who designs the barn, it is well to submit the final plans to several contractors, getting bids from each. By having as many sets of blue prints and specifications as there are contractors figuring on the barn, you can safely let the contract to the lowest bidder, because the successful bidder must follow directions as to workmanship, construction and material.

The Site

Even before plans are drawn, the exact location of the barn should be decided, because the site chosen may alter the plans considerably.

The barn should, if possible, run north and south, as this will permit sunlight to reach all points within, at some time during the day. Sunlight is the best of all disinfectants—the easiest and most certain method of destroying germs of tuberculosis and other diseases.

The barn should be so located that a sheltered yard may be provided to the south of the building.

Consideration must also be given to the appearance from the highways; the position of surrounding buildings; and the location of hills, trees and hedges for windbreaks. Where there is more than one barn the buildings should be arranged as compactly as possible, to lessen the labor of caring for the stock.

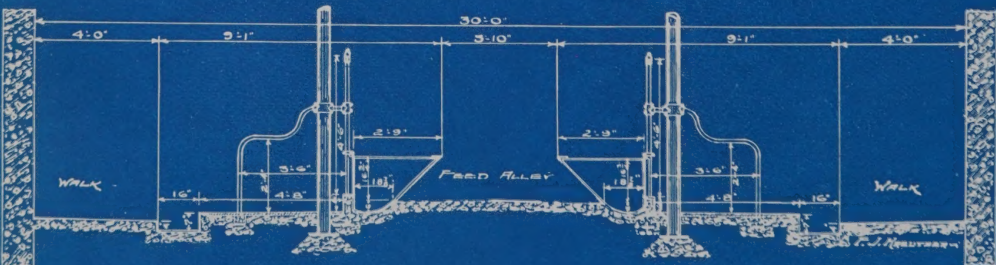
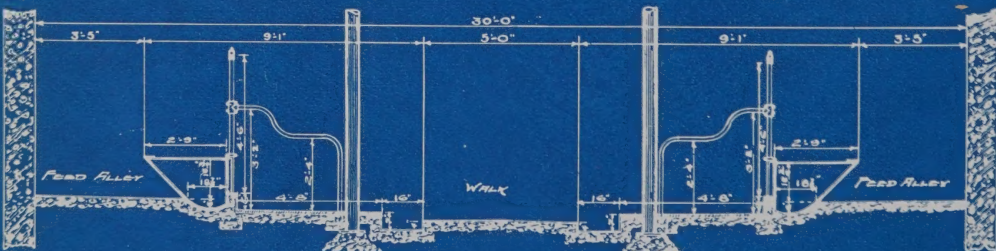
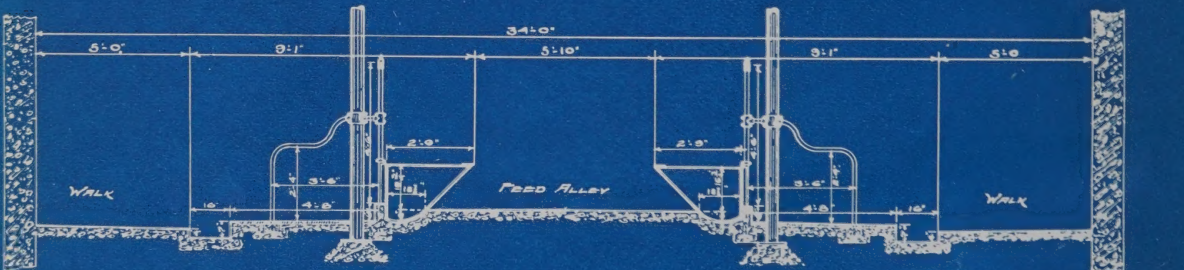
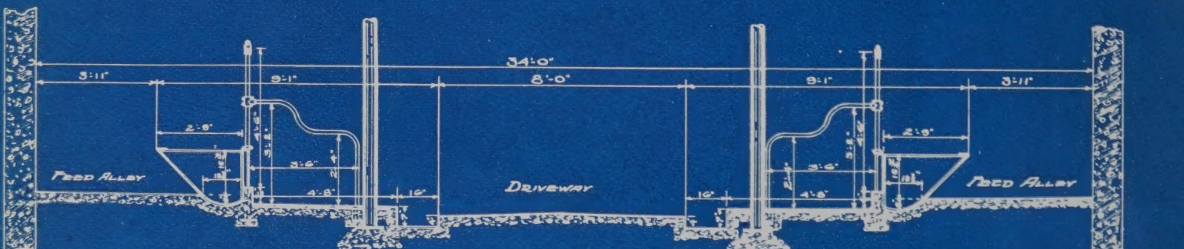
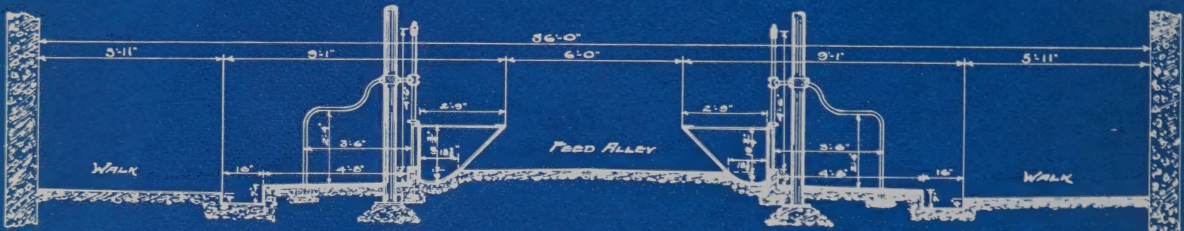
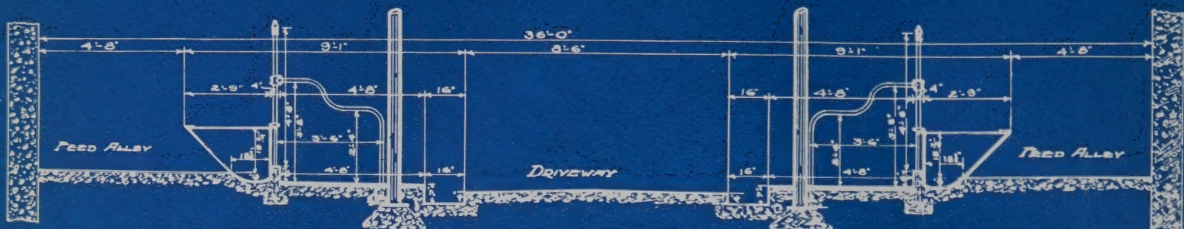
The location should be such that the yard will have natural drainage or can be so graded that the surface water will run away from the barn. A cow will keep herself fairly clean if given a chance, standing in filth only when compelled to do so to secure food or water or protect herself from flies. If the yard is kept dry and clean it will make much easier the task of keeping the cows clean, as well as promote the health and comfort of the cattle.

Many farmers are solving the barnyard problem by covering with six inches of broken stone, placing cinders or gravel on top, a little slope being given to provide drainage. Occasionally a barnyard is seen that is made of concrete, which has the great advantage of being very easy to keep clean.





Barn at Waukesha, Wis.
Brown & McMillan, Milwaukee, Wis., Owners



Size of Barn

The next thing to be determined is the size of barn needed to accommodate the animals and provide the necessary storage capacity.

Experience has proven certain measurements of stalls, mangers, gutters and passageways to be the most practical. With these measurements and information as to present and prospective size of farm, kind and number of head of stock, system of farming and number of acres in crops, the size of barn required can be quickly figured out.

In almost every case the most satisfactory results are secured by placing the cows in two rows; in the average barn the stalls, gutters and alleys make thirty-six feet the most convenient and practical width. For certain purposes the barn is sometimes made slightly wider, but with few exceptions thirty-six feet is best.

It is quite true that this width is not the most economical when the relation of wall space to floor is considered, but any loss in this direction is more than made up in the ease with which the stable work can be performed. The two-row arrangement also permits better ventilation and better lighting.

Individual circumstances must determine whether the barn is to be one story, a story and a half, or full two stories. The one-story barn is often preferred where barns already built are to be used for storage purposes. The story-and-a-half type provides considerable storage room, particularly if baled hay is used.

The full two-story barn gives far greater storage capacity in proportion to cost.

Roof, floor and stable walls cost practically the same whether the building be low or high, and almost the only additional expense to secure the greater capacity is the cost of the second-story walls, which is comparatively small.

A tight ceiling in the stable does away with the principal objection to storage above the cows.

Appearance of the Barn

Barns can be made architecturally beautiful, and that too without any additional expense.

A well designed, handsome appearing, practical barn will add to the attractiveness of the farm, and make it worth more to any prospective purchaser.

Correct designing—the right lines—has more to do with the appearance of the barn than any other one thing, although the exterior finish and the relation of other buildings must be considered.

Properly proportioned dormer windows break the monotony of the roof, and add greatly to the appearance of the building.

These dormers also serve the more important purpose of giving light and ventilation to the haymow. You know what it is to mow hay on a hot summer's day, and can readily appreciate the value of ventilation and light in that part of the building.

The ventilators also can be made to add to the appearance of the barn if they are correctly shaped, and they can be made to aid in the ventilation of the mow, as well as of the stable.

The Walls

The average height of the stable ceiling should be eight feet six inches to nine feet. A greater height calls for more heat to keep the stable comfortable, and is of no advantage in other ways.

As the dairy section extends from the warm south to the cold northwest, the plans should be modified to meet conditions.

In the south, a wall of one layer of siding, tongued and grooved, or battened, is sufficient for warmth, while at the northern extreme, one or more dead air spaces are needed. The barn must be planned according to the climate.

In the south, barns may be built without wooden sides, canvas curtains being provided to keep out the little chill that is sometimes present.

On the other hand, it is almost impossible to keep the stable on the Dakota prairie sufficiently warm when a blizzard is blowing.

Supporting Columns

Dairymen and farmers are finding the James Metal Columns (filled with red granite, torpedo washed sand and Portland cement) far better supports for the barn than wood.

They occupy one-third the space, are fireproof, interfere less with light and with the circulation of air, are neater, more up to date in appearance, and are more durable, costing less in the long run than wood. There is absolutely no objection to supporting columns in the stable, providing they are properly located. Columns are less expensive than the trussing required if they are dispensed with—at the same time they leave the haymow clear of obstructions.

The 4½-inch James Column for example, has a safe carrying capacity equivalent to an oak or yellow pine post 6"x8"; or a white pine post eight inches square.

A 4½-inch James Column has a cross section area of 15.9 sq. in. as compared with 48 sq. in. cross section of the oak or yellow pine post, or 64 sq. in. of the pine post referred to in the above paragraph.

Thus it will be seen that the James Column of equal strength takes practically only one-fourth to one-third the space occupied by the wood supporting posts.

Stable Floors

A good stable floor should be impervious to water that it may be sanitary; it must be easy to clean; comfortable for the cow; and durable in service. It should not rot nor wear out, nor be expensive to construct.

The old-style wood floor had the merit of being warm and easy on the feet of the cattle. It is long since out of date, however, because it soon gets foul, rots out quickly, and becomes unsanitary; is high in first cost; and its life is short—three to five years being the usual life of a wooden floor.

The three materials now widely used for stable floors, which can be recommended are: Concrete, Cork Brick and Wood Blocks.

Concrete floors have proven very satisfactory in most ways, meeting every requirement for the dairy barn floor, with one exception—it has been found injurious to cows to stand or lie on its cold, hard surface.

The problem is solved by using concrete for the entire floor, covering the standing platform with cork brick or wood blocks, the cracks being filled with cement. The surface is easily kept clean, is impervious to moisture, warm and easy on the feet of the cattle.

Material for Concrete Floors

The dirt floor of the stable should be as level as possible, thoroughly tamped and well wet, so that no settling will occur.

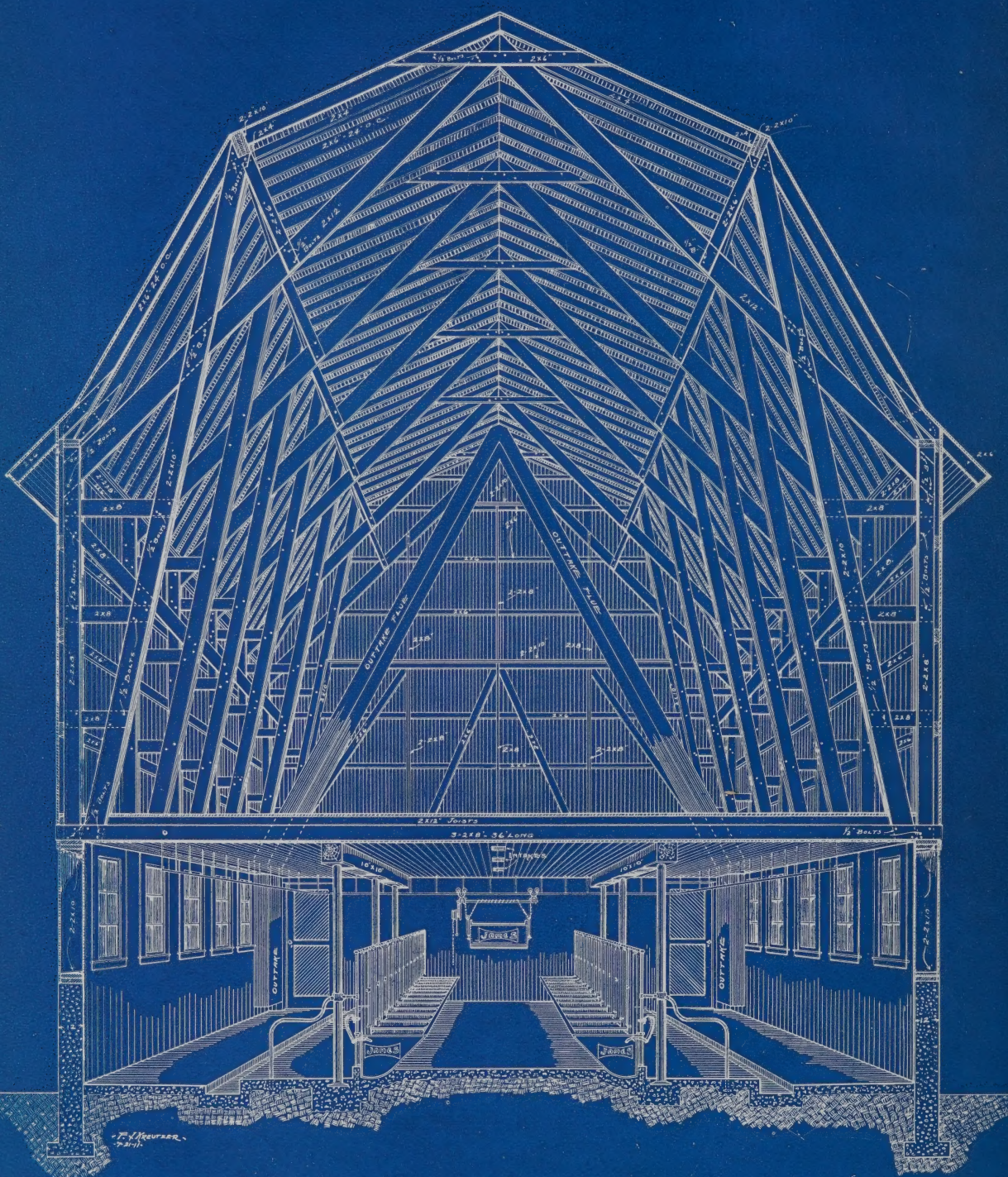
Before laying the concrete, a foundation of porous material, such as gravel, cinders or sand, should be spread evenly on the surface and thoroughly tamped. The depth of this porous foundation will depend upon the drainage of the soil. Where a fill of earth has been provided, this foundation need not be more than four inches thick.

Thickness of Concrete Floor

The usual thickness of a stable floor is four inches concrete grout and one inch facing.

Proportions of Materials

A mixture of one part of Portland cement, two and a half parts sharp, coarse, clean sand, and five parts coarse, clean gravel is used; for the upper



inch facing one part of Portland cement, two parts sharp coarse clean sand. No loam, dust, vegetable matter or clay should be allowed in the material, as it tends to form a layer over the face and keeps the cement from binding it into a solid mass.

Mixing the Concrete

The water used should be fresh and clean, free from any acids or strong alkalis. The water should not be put in the mixer with a hose, but should be measured, and when the proper consistency has been found, use exactly the same amount for each batch.

The concrete should be mixed in batches. All materials should be first thoroughly mixed dry, after which the water is added and the mixing continued until the concrete is uniform.

Gutter

A properly constructed gutter is very essential to insure strict sanitation. It should have vertical sides, at least four inches deep, to break the spatter, and make it easy to clean with an ordinary shovel. The size of gutter which has proven most satisfactory is sixteen inches wide, six or seven inches deep on the stall side and four inches deep on the other. Often the alley back of the cow is pitched just a trifle, so that the liquid manure and flushing water will run back into the gutter.

Mangers and gutters should be provided with sewerage, to be used only for washing out,—never for the purpose of removing the manure.

Most dairymen now consider it the best practice to preserve the fertilizing value of liquid manure by the use of absorbents, such as cut straw, shavings, etc.

The method of handling liquid manure by draining into a cistern is no longer considered favorably by authorities, because of the difficulty in handling.

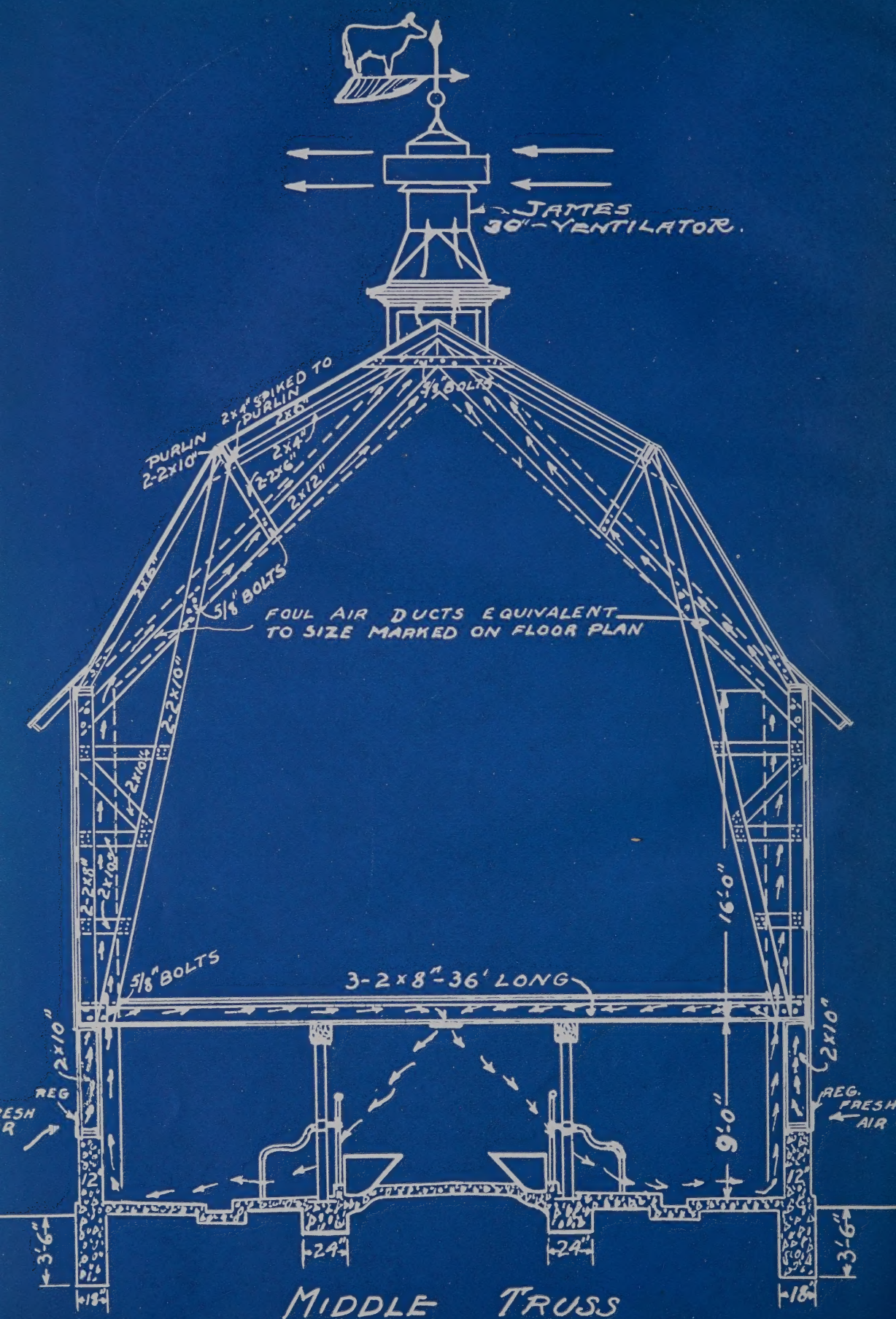
Plank Frame Barns

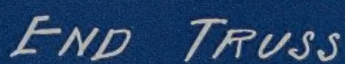
There are many types of dairy barns, with many modifications of each type.

But of late years the plank frame barn, in one form or another, has become the most popular.

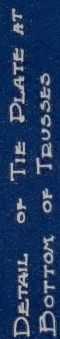
Since its construction is not as well known as some of the other types, we are devoting space to this special class of buildings. The principal reasons for the building of the plank frame barn are:

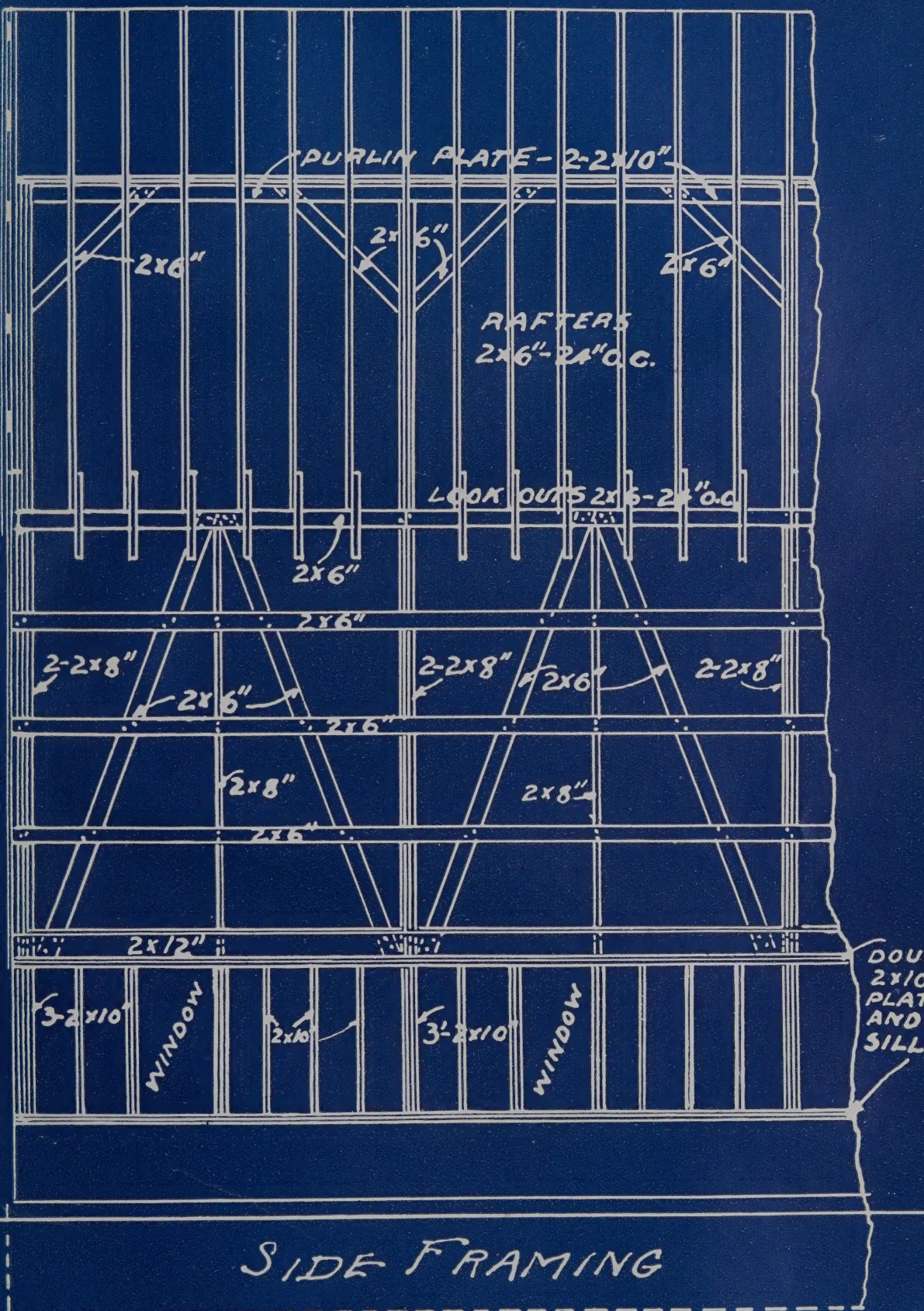
1. The fact that it saves in cost of lumber.
2. It provides far more storage room in the hayloft.
3. Is much more easily built than any other type, if the correct method of erection is followed.

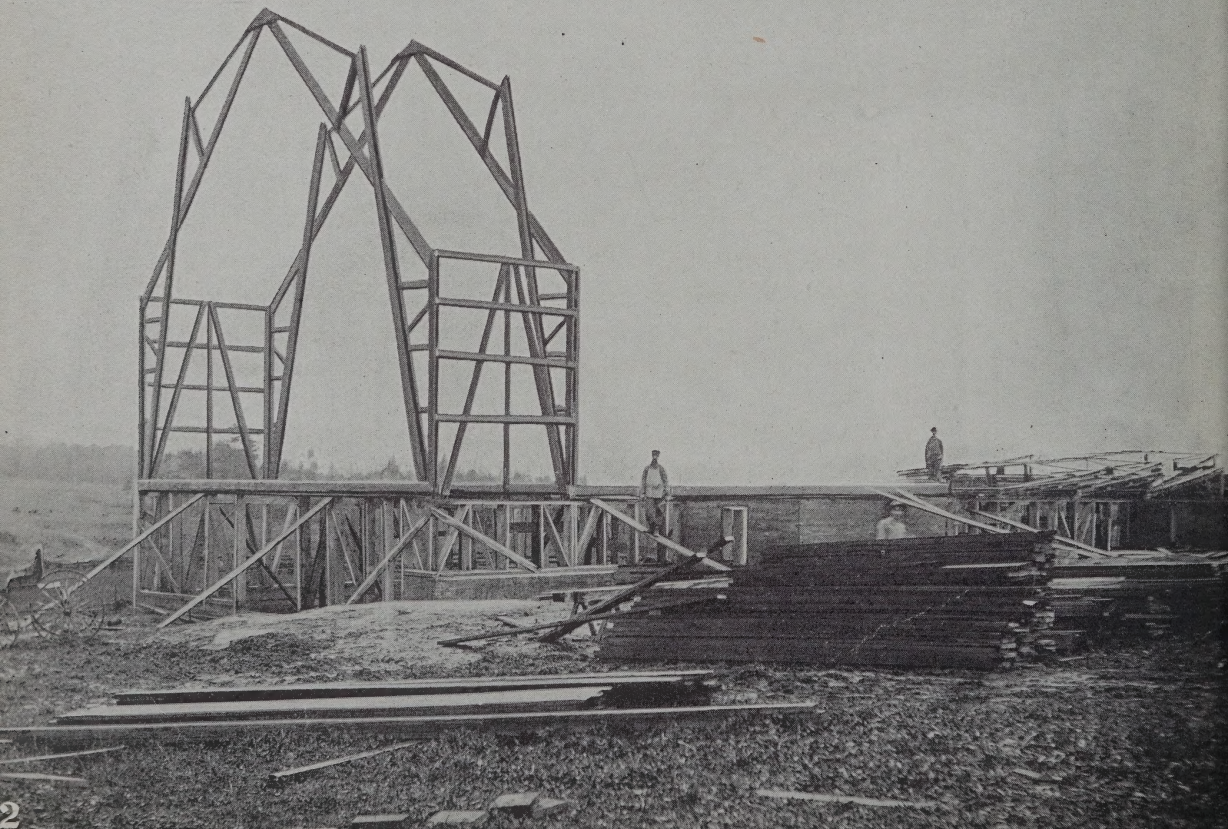




END TRUSS







In building the plank frame barn, no piece of timber is used thicker than two inches. Girders, trusses, purlines and tie plates are built up of two or more two-inch planks, four to twelve inches wide if barn is not wider than forty feet.

With the scarcity of heavy timbers and their consequent high cost, it is worth while for farmers to study this newer method of framing.

With the old-style heavy timber framing, the cutting of the mortise and tenon joints required much skill and labor. Since a truss, like a chain, can be no stronger than its weakest point, many of the heavy timber frames are not as strong as they may appear—the joints being only as strong as the thickness of the timber in the tenon.

The girders built up of planks retain the full strength of all of the timber, and are just as satisfactory in every way as the solid timber girders of the same area.

The use of modern hay carrying and grain elevating machinery calls for barns with open centers. In the plank frame barn there are no cross beams nor heavy supporting timbers to interfere with such machinery.

With this style of framing one man can do as much work in mowing away hay as three with the old-style frame, there being no obstructions to interfere with and delay the work and it not only requires less help to put the hay into the barn, but it requires less labor to take it out.

This open loft also provides far more storage space.

The photographs and blue prints herewith should make the method of building the plank frame barn quite clear; and if you could see such a barn in process of construction, you would realize that this type of barn is so easy to build that a skilled carpenter is hardly required to do the work.

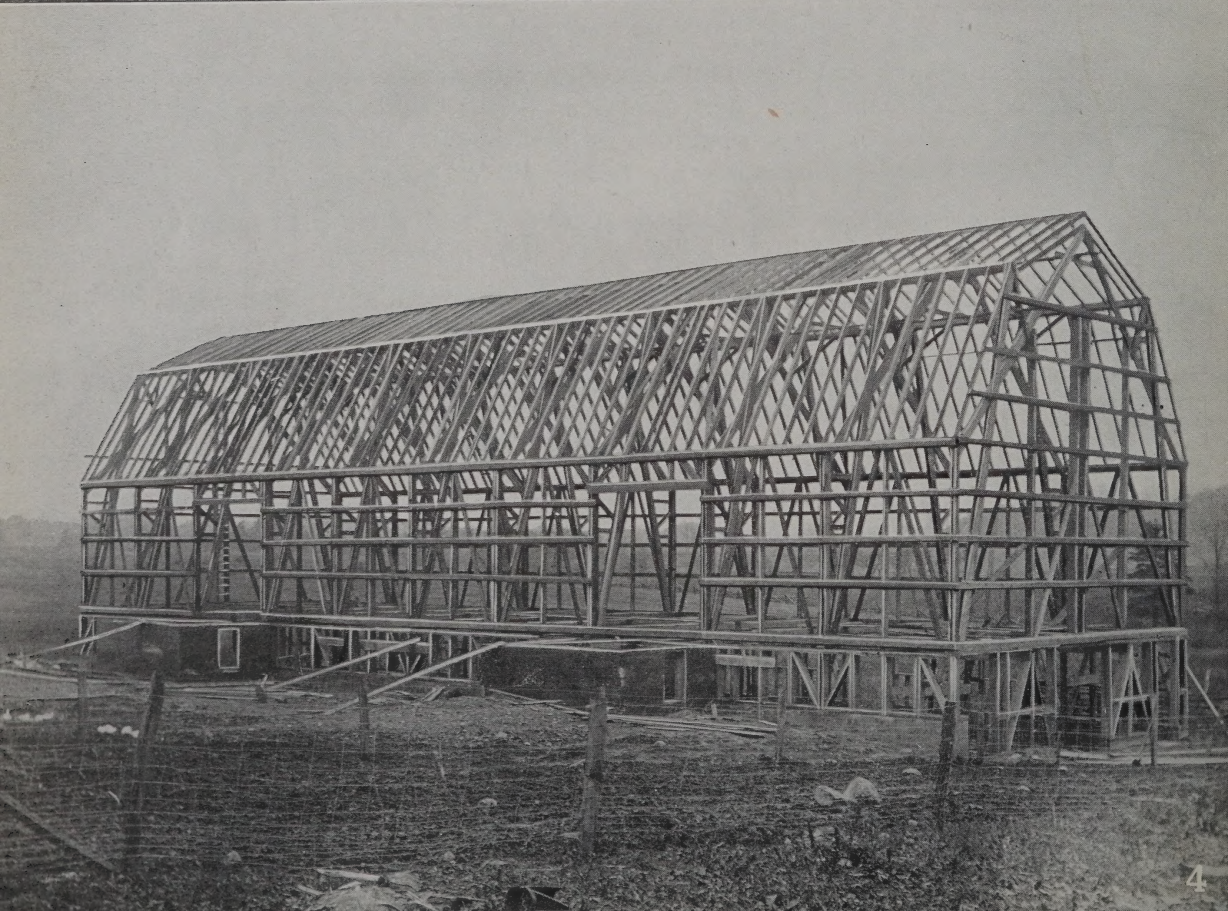
No scaffolding of any kind whatever is needed, and if the right method of raising the trusses is followed, no difficulty will be experienced.

The first step, of course, is the excavation for the foundations, and good practice requires that this extend below the frost line.

Sometimes the first story is built of concrete or stone. Where this is done, the ventilating intake flues may be of galvanized pipe, set in place and the concrete poured or the stone laid around them. Intakes so installed are shown in Illustration 3.

Many object to the concrete wall, however, on the ground that it transmits too much moisture. It is also somewhat more difficult and more expensive to set window frames and intake flues in the stone wall than in frame construction.

The practice preferred by many is to build the foundation of stone or concrete to the window bases, completing the first story with a frame wall—2 x 8s or 2 x 10s forming the studding up to the ceiling. With such a wall



it is easy to set in the window frames; and the space between the studding gives room for the proper installation of the ventilating intake flues, tapping the outside for the register face, and the inside for the complete register at the proper points.

By using the joists or other timbers for the concrete forms, the cost of lumber for this special purpose can be saved.

After the foundation is in and the frame for the first story wall completed, the supporting columns are next put in place, the proper footings for same having been provided. It is important that the footings be of ample size; if they are not, the building may settle, cracking the concrete floor and doing other damage.

Metal columns being used, the bottom of the column should be two to six inches below the finished floor line, depending on the method of finishing the floor.

When these columns are in place the girders may be laid.

As suggested before, there are two kinds of girders—one of solid timber, the other continuous built up from two-inch planks.

The latter are usually preferable, being stronger because any defects in the lumber are apt to be better distributed. Care must be used, however, to so stagger the joints that the girder has uniform strength; the spacing of the joints depending on the distance between supporting posts and on certain other conditions.

The foundation, the frame of the first-story wall, supporting columns and girders all being in place, the floor joists are next put in.

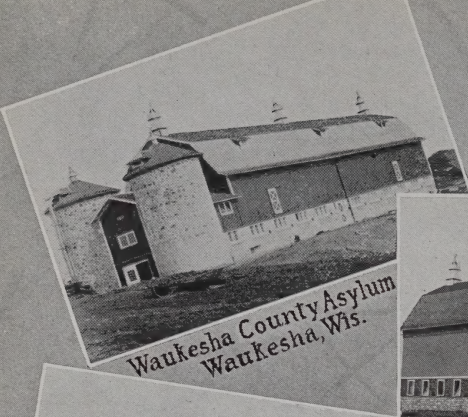
Then a temporary floor of loose boards is laid on the joists, so that the workmen can move about freely while raising the trusses into place.

The plans will show exactly how to cut and put the first truss together—which will look like illustration 1. When this first truss is completed, it may be laid out on the floor, and all the other trusses may then be built exactly like it, one on top of the other, thus insuring absolute accuracy in all the joints and measurements.

When all the trusses necessary have been finished, the first truss is placed in position at one end of the barn.

This is usually done by placing the feet of the truss at the places where they are to rest when in position; with the top of the truss toward the center of the barn. Blocks are then spiked to the joists at the proper points, so as to keep the feet of the truss in place while being raised; the feet of the truss resting against these blocks and pivoting on them.

A gin pole (shown in Illustration 3) is erected at the end of the barn in the center, leaning at an angle of about 45 degrees toward the center of



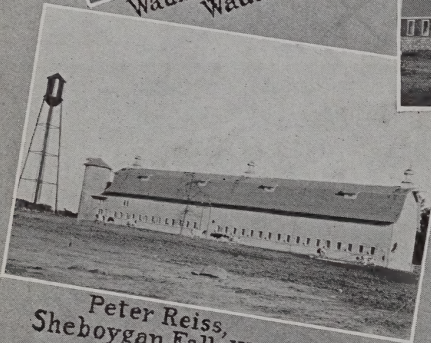
Waukesha County Asylum
Waukesha, Wis.



Barn at Waukesha, Wis.
Brown & McMillan
Milwaukee, Owners



F.A. & M.G. Eberlein,
Shawano, Wis.



Peter Reiss,
Sheboygan Falls, Wis.



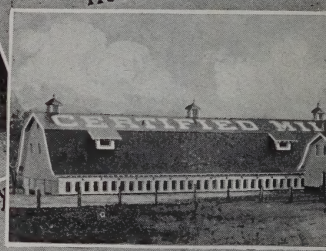
T.B. Clark,
Honesdale, Pa.



Wood County Asylum Barn,
Marshfield, Wis.



Jewish Protectory & Aid Society
Hawthorne, N.Y.



F.S.
Holly



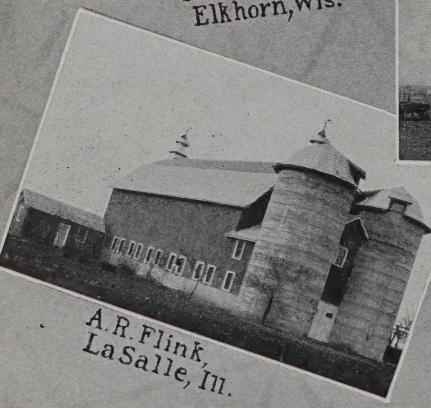
John Harris,
Elkhorn, Wis.



Utah State Prison Barn
Salt Lake City, Utah



H.R. Wait Co.,
Auburn, N.Y.



A.R. Flink,
La Salle, Ill.

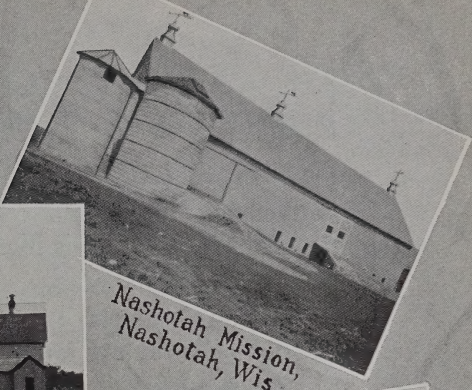


Experimental Barn,
James Mfg. Co.

Barns
Designed by
James Mfg.
Co.



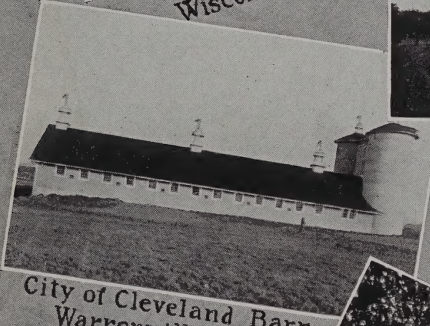
Model Barn,
Wisconsin State Fair



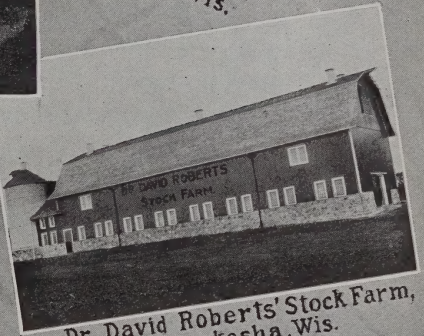
Nashotah Mission,
Nashotah, Wis.



Fred Knaisch,
Buffalo, N.Y.



City of Cleveland Barn,
Warrenville, Ohio.



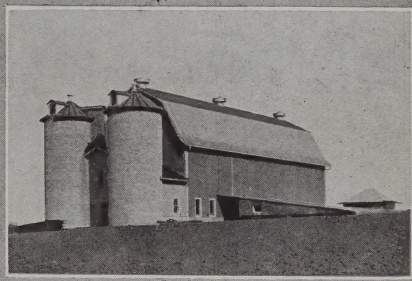
Dr. David Roberts' Stock Farm,
Waukesha, Wis.



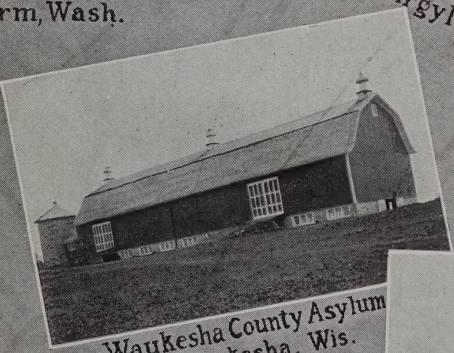
son,
arm, Wash.



Anton Erickson,
Argyle, Wis.



C. C. Gittings,
Racine, Wis.



Waukesha County Asylum,
Waukesha, Wis.



Mrs. W.A. Carpenter,
Ft. Atkinson, Wis.



Roloff Bros.
Delafield, Wis.



Barn on Galloway Farm,
Waterloo, Iowa.



St. Mary's College,
St. Mary's, Kansas.

Barns
Designed by
James Mfg.
Co.

the barn; a block and tackle is rigged, the rope passing over the gin pole and attached to the upper parts of the truss.

A horse or team is hitched to the block and tackle, and the truss quickly raised to position.

A gang of men can do the same work, but the horse or team is cheaper. A few men with guy ropes are necessary, to steady the truss while being raised.

As soon as this first truss is up, it is braced in position temporarily, as in the Illustration 1.

The second truss is then raised in like manner, and as soon as it is up the girts are added, as shown in illustration 2.

Then one after the other the trusses are put in place, the girts being spiked on as you go along. The last two trusses, when laid in position for raising, will project over the end of the barn. The projecting portion is supported by temporary props, which are removed when the truss is being raised. The end girts can be added at any time convenient.

How much simpler this is than the old-time barn raising, when the heavy timbers were in common use. No longer is there any need for getting together thirty to forty men for the raising of a medium-sized barn! Today, a half-dozen men will put up the plank frame in less time than thirty or forty could in the old days.

To put on the plates no scaffolding is needed, since it is not difficult to climb up on the truss itself.

The next step is to put the purlines in place, raised to position with block and tackle.

Before putting on the rafters and cornice, the siding is nailed on, because it can be done more conveniently before the rafters and roof boards are in place, there being nothing to interfere with nailing on the boards under the cornice.

Ventilation

Ventilation is the process of creating and regulating diffused air currents, removing foul air and introducing sufficient pure air into a building, so that a certain standard of purity healthful to man and beast is at all times maintained.

A man can live forty days without food and seven days without water.

He can live but a few minutes without AIR.

A cow can live longer than a few minutes without PURE air; but the more impurities there are in the air she breathes, the greater will be the tax upon her health and upon her ability to produce milk—the greater will be the tax upon her vitality and upon life itself. In poorly ventilated barns, the air is breathed over and over again, and becomes poisonous; cows in such a stable become less able to resist disease, and cannot recover from diseases as easily.

Air, water and food are the three great essentials of life, and of the three AIR may fairly be considered the most important, because it is the FIRST great life-sustaining element for all animals.

How necessary pure air is to life and to the maintaining of vitality and energy is well illustrated by many interesting items cited by writers on the subject.

Near Naples, Italy, is the famous Dog Grotto, which is filled to a certain height with carbon dioxide, the same element that is thrown off by the lungs. So powerful is this carbon dioxide, or rather so powerful is the lack of oxygen because of its presence, that a dog brought into the grotto is rendered insensible within a few minutes. This experiment is often performed, on payment of a small fee, for the amusement of travelers.

The effects of breathed air have been frequently tested in schools where for a short time the ventilation had been cut off. The pupils at first complained of being cold, and it was found necessary to raise the temperature from 70° to 80° Fahr. before the occupants of the room were warm. This no doubt was due to the reduction in vitality owing to the impurity of the air and a lack of oxygen in the lungs. After the ventilation had been cut off for twenty or thirty minutes, the pupils began to complain of headache.

Everyone knows how quickly impure air in a room—a church or lecture hall, for instance—will cause a person to become sluggish and drowsy, and how it destroys energy.

In our histories at school, we used to read of the Black Hole of Calcutta, where, in 1756, 146 prisoners were confined in a cell 14 ft. 10 in. by 18 ft., having but two small windows—all but 23 dying during the night, for lack of oxygen.

One writer vividly illustrates the vital importance of PURE air to the animal by pointing out what a task it would be to carry fresh air to a cow in a 3-gallon pail, as one might carry water. To supply a cow in this way, would require $5\frac{1}{3}$ full pails of fresh air each minute, or a total of 7,718 pails each twenty-four hours.

This amount of fresh air would contain 3 pails of carbon dioxide; after the cow breathed the air it would contain $307\frac{1}{3}$ pails of carbon dioxide; and almost four pails of water would be given off by the cow through her lungs and pores.

A cow consumes TWICE the WEIGHT of pure air that she does of FOOD AND WATER COMBINED.

Can you realize what an amount that is?

Pile up a day's ration of hay and silage and grain; beside it put the pails of water a cow will usually drink in a day.

The WEIGHT of that food and water equals just about ONE-HALF the WEIGHT of the air the cow requires during the twenty-four hours. And that is figured on the basis of pure, fresh air at that.

The scientists tell us that air is not a simple substance, but consists of a mechanical mixture of the gases oxygen and nitrogen with about 1 per cent by volume of argon. Atmospheric air of ordinary purity almost always contains a little carbon dioxide together with more or less vapor of water, and a very active form of oxygen known as ozone. The average composition of air is given as follows:

Oxygen,	20.588
Nitrogen,	76.765
Carbon Dioxide,	0.039
Water,	1.686
Argon and other constituents,	0.922
	100.00

The air as thrown off by the lungs at 90 to 98 degrees Fahr. is nearly saturated with water, and contains from 3 to 5 per cent carbon dioxide; hence, it is from 1 to 3 per cent lighter than the air inhaled.

The following table shows the approximate effect of respiration on the composition of air:

	Entering Air	Respired Gases
Oxygen, per cent of volume.....	20.59	15.74
Nitrogen and other constituents.....	77.68	75.29
Carbon Dioxide.....	0.04	4.00
Water	1.69	4.97
	100.00	100.00

It is the oxygen that is the energy and life-producing element; without it there can be no animal life. Oxygen is not to be considered as having any properties as a food, but is rather the necessary element which makes it possible to assimilate and utilize the food.

While the air is in the lungs, the oxygen which is imparted to the tissues acts upon the carbon of the blood, forming chemical compounds which are thrown off in respiration; this process resulting in the production of heat and energy so necessary to life.

A similar process occurs with the burning of coal or wood in the stove.

The oxygen of the air unites with elements in the fuel to produce that energy we call heat, and the same waste products are formed—carbon dioxide, ammonia gas and water vapor.

This waste—the smoke and the ashes—must be removed from the stove, and oxygen supplied—or the fire will cease to burn.

In the same way, the respired or breathed air *must* be removed from the stable, and fresh air supplied, so that the cow may have *oxygen* on which to live and supply the energy necessary to produce milk.

If the stable were air-tight, and no fresh air introduced, the cow would die, just as the fire choked with ashes will soon go out, though it may be plentifully supplied with good coal or wood.

Fortunately no stable is air-tight; but in the colder states of the north, most stables are built as tight as possible, to insure warmth for the cows.

Conditions in this respect are rapidly improving; but even today very few stables, comparatively, provide sufficient ventilation—enough *oxygen*—to enable the cows to make the most milk possible from the feed and water they consume.

In all such cases, providing plenty of fresh, pure air will result in greater milk yields.

Actual experiments have proven that cows stabled in ordinary barns without adequate ventilation, will give more milk when the proper ventilation is provided; and when the operation of the ventilating system is stopped, their milk yields will immediately decrease to the former amount.

Not only is oxygen more necessary to life than food and water—not only does the lack of sufficient oxygen reduce the milk yield—but it affects the health and vitality of the animal, making her less able to resist disease.

Now, out-of-doors the cow gets all the pure air, all the *oxygen she needs*. But it is far different in the wintertime, when she is confined to the barn.

In many barns, the cows must breathe the same air over and over, excepting for the small proportion which may leak in from outside through cracks and through the occasional opening of a door.

To get the most milk possible from his cows and to make more profits, the owner must in some way bring plenty of pure air to the cow's nostrils.

Since air is the most important element in maintaining life and energy—since a cow consumes twice the weight of air that she does of food and water combined—and since air costs absolutely nothing—the owner of cows can afford to study this matter carefully, and make certain that his animals are being fed *all the oxygen they need*.

The water vapor present in breathed air must also be removed from the barn.

The moisture thrown off by the average cow in twenty-four hours amounts to $11\frac{1}{2}$ pounds, or $1\frac{2}{5}$ gallons of water.

Thirty cows will load the air in the stable with $1\frac{1}{3}$ barrels of water daily.

If that amount of excess moisture is permitted to stay in the barn, the results are harmful not only to the cows but to the barn itself, rotting the sills and timbers and shortening the life of the building.

This excess moisture in the stable air causes that disagreeable "steaming" so noticeable in many barns on cold days.

This "steaming" is a sure sign that the moisture is not being carried off by the ventilating system, that the air in the stable is not being changed with sufficient frequency to keep it fresh and pure.

If the ventilating system used in the barn is a successful one, all this moisture will be promptly removed; but if there is too slow a change of air this moisture will remain in the barn, condensing on walls and ceiling, making the harness damp and frosty and the hay heavy and wet.

Thorough ventilation also prevents the formation of ammonia carbonate. Carbon dioxide thrown off by the animals in breathing unites with the ammonia in the manure and produces ammonia carbonate, which you have often seen in stables as a white coating on harness, buggy tops and the beams of the barn.

Ammonia carbonate has a rotting effect on leather, paints and wood, and is a strong irritating compound that injures the throat and lungs.

Ammonia carbonate will not stay in a properly ventilated barn, for it will be carried out along with the moisture and foul air.

How to Ventilate the Barn

Do not think that because a barn is cold, it is well ventilated; nor that a well ventilated barn must of necessity be cold.

With the right system of ventilation, the stable may be kept comfortable at all times, yet the air will be pure and free from odors.

Some think that the opening of the haychutes provides proper ventilation. While this may effect a sufficient change of air in the stable, it does it at the expense of heat, making the barn cold; removing all of the warmest air which is at the ceiling.

Another objection is that the warmer air of the stable coming in contact with the cold air in the haymow condenses the moisture. The moisture and some of the foul elements of the air from the stable are deposited on the hay, and is fed again to the cows.

If any cow in the herd has tuberculosis this may be a very serious matter. The germs of tuberculosis and other diseases have no power of locomotion themselves, but are readily carried on particles of dust. With the right method

of ventilation these particles of dust, carrying the disease germs, would be carried through the outtake flues out of the barn and into the open air and sunlight, where they quickly perish.

If the air with its load of germ-carrying dust is taken into the haymow much of the dust with the germs of tuberculosis and other diseases will be deposited in the hay, and being again fed to the cows may have disastrous results in the spreading of disease.

To provide the immense amount of fresh air required by the cows in the barn, careful provision should be made when planning and building the barn. It is, however, not difficult with most old barns to install a satisfactory system of ventilation.

The only practical way in which oxygen can be brought to the cow's nostrils and foul air removed is by correct ventilation, and this requires:

1. That there be a continuous change of air in the stable, so that at no time will there be too much air that has been once breathed. Authorities set $3\frac{1}{4}\%$ of air once breathed as the limit.
2. There must be no stagnant spots of foul air at any place in the stable—the pure air must be thoroughly diffused throughout the barn, supplying fresh air to each and every cow.
3. This complete change of air and its thorough diffusion throughout the barn must be accomplished without excessive loss of heat.
4. No harmful drafts should strike the cows.

James Improved Ventilating System

This problem has been solved by the James Improved Ventilating System.

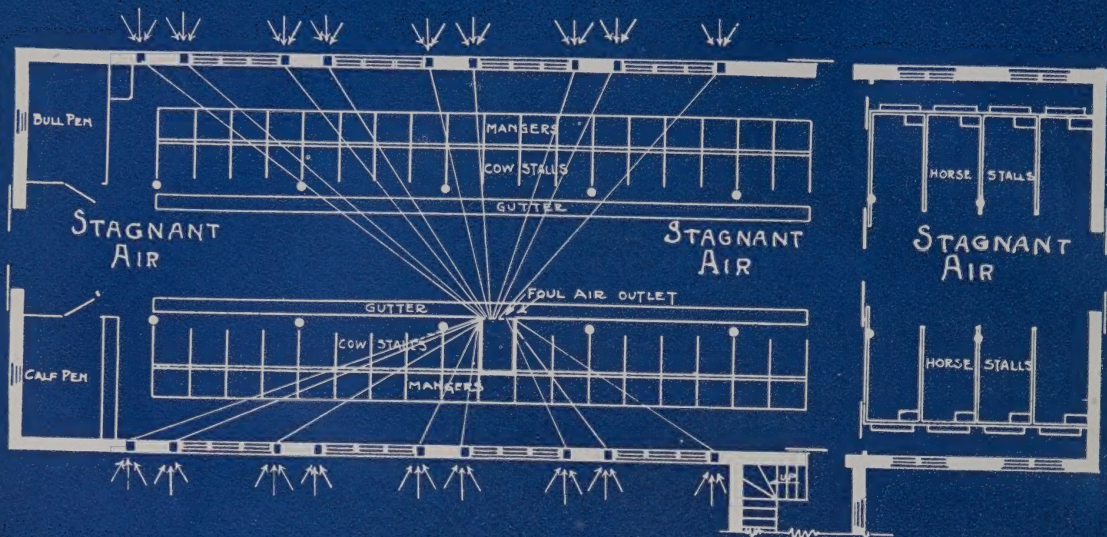
The principles of ventilation proven necessary by scientific investigators in past years are made use of, together with certain improvements developed by Mr. James and his associates. The system may be briefly explained as follows:

Warm air rises.

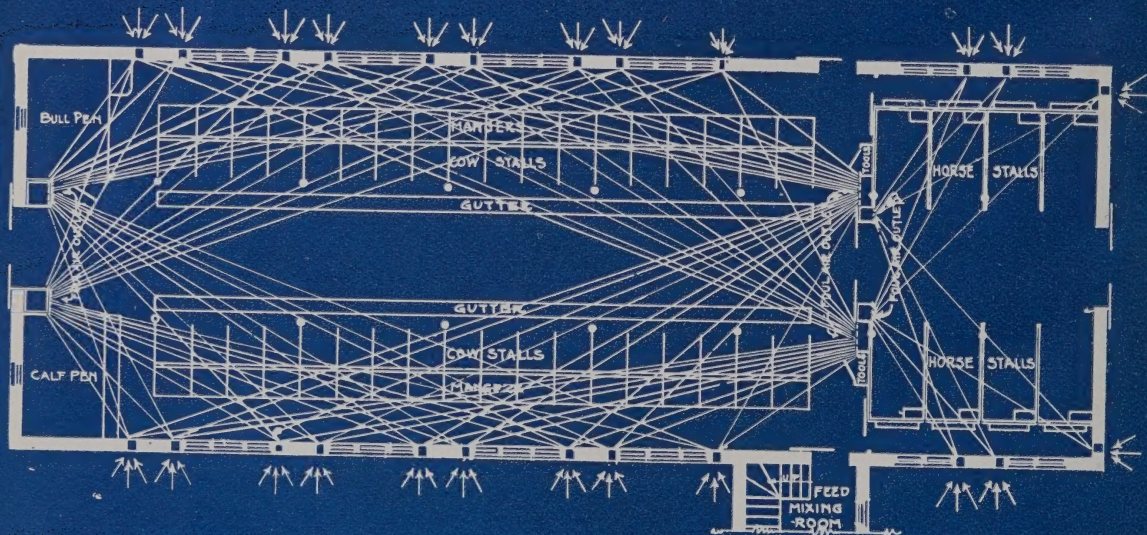
Carbon dioxide, and the other foul elements of air that has been once breathed, at less than 80° Fahr. is heavier than pure air; hence, in a dairy barn in wintertime the foul air tends to remain at the floor.

The Outtake

This foul air is removed from the barn at the floor through one or more outtake flues.



This illustrates an incorrect location of outtake flue. The tendency of the air is to take the most direct route to the outtake flue; with the outtake so located, there would be many places in the barn where the foul air would remain stagnant, and a certain proportion of the animals in the barn would be forced to breathe foul air over and over.



With the outtake flues properly located as in this barn, the fresh air entering the barn finds it impossible to go directly to the outtakes; but instead is thoroughly diffused before working its way to the outtake flues. This prevents harmful drafts and brings a continual stream of fresh pure air past the noses of every animal in the stable.

The air at the inside opening of the outtake being warmer than the air out-of-doors, starts an upward current in the flue, just as the kindling of a fire in the stove starts a draft that gradually becomes strong.

This movement is also assisted to some extent by the wind blowing across the top of the outtake, just as a chimney has a stronger draft when the wind is blowing hard.

However, if dependence is placed on the difference in temperature between the air in the stable and that out-of-doors, the system will not always work satisfactorily in the warmer weather.

The James ventilator has been developed to increase the air movement, and make more certain the uniform operation of the ventilating system.

This is accomplished by taking full advantage of the suction power of the wind.

The ventilator has a top that turns with the slightest breeze, a vane keeping the large opening in the "intensifier" always toward the wind. The wind passing through the tapering "intensifier" is speeded up, leaving the small opening at high velocity. This creates suction, exerting a powerful pull on the air in the outtake flue.

Scientific tests by a competent engineer, as well as tests in actual use in dairy barns, have proven that with this principle in ventilators, 30 to 65% better ventilation is secured as compared with the old wooden cupola and the ordinary ventilators on the market.

The Intakes

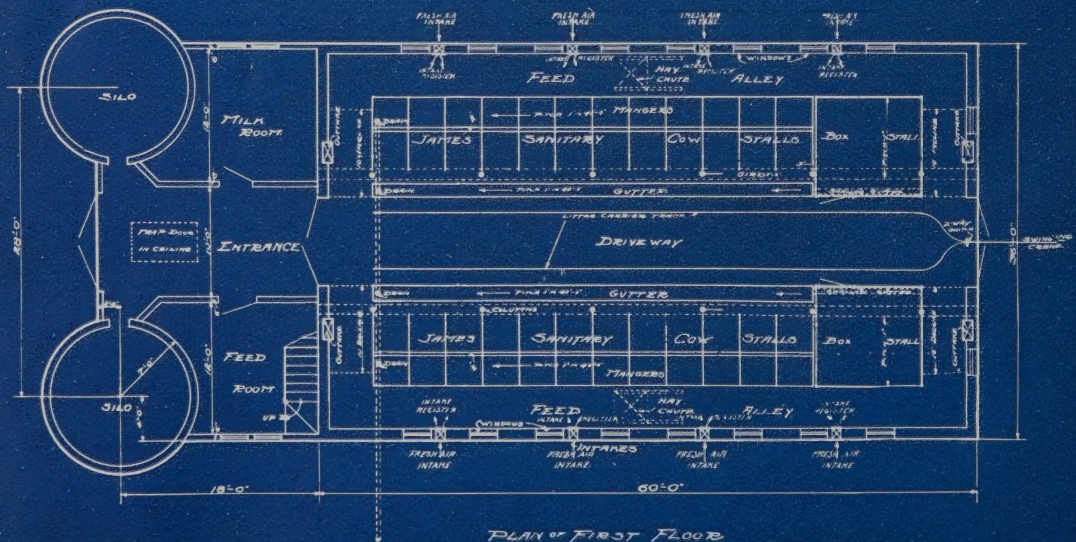
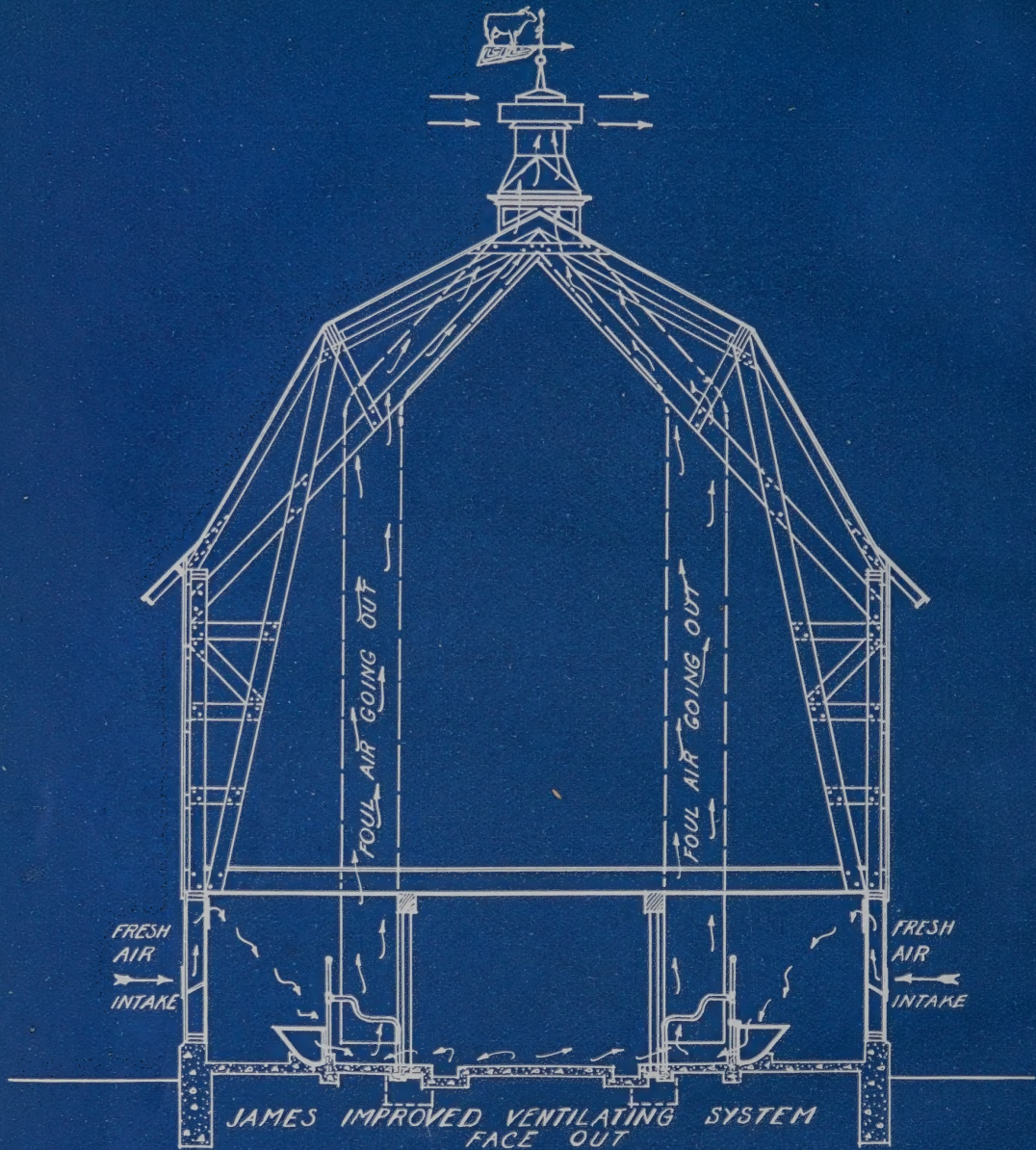
Every foot of foul air removed from the stable will of course be at once replaced by an equal amount of fresh air. The fresh air enters at the ceiling through intakes in the walls of the stable, the inlets of which in the outside of the wall are located about halfway between floor and ceiling. The purpose of this is to "trap" the heat within the stable. The warm air being lighter than cold, cannot get out through the intake flues.

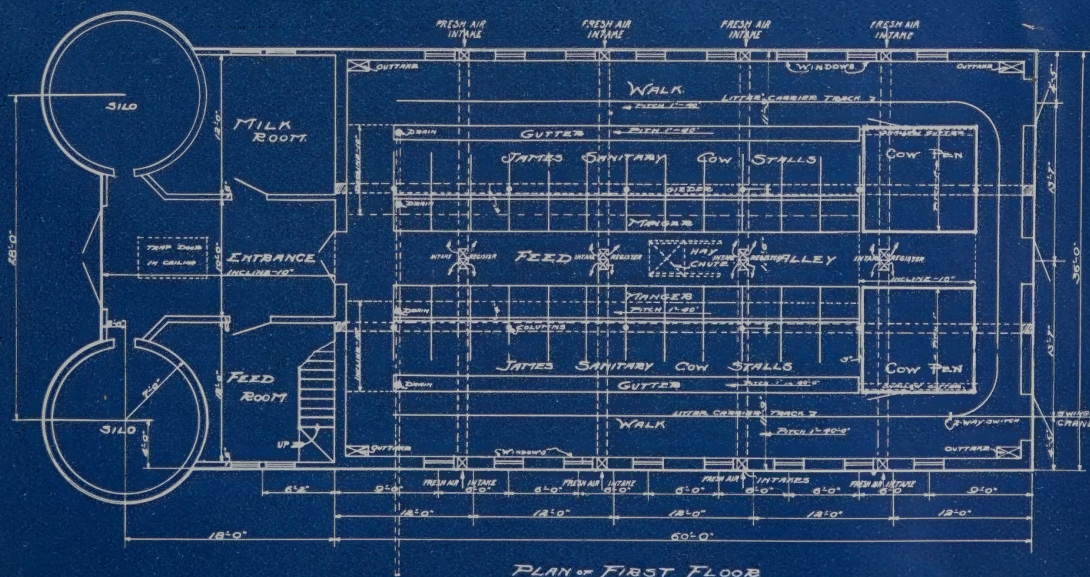
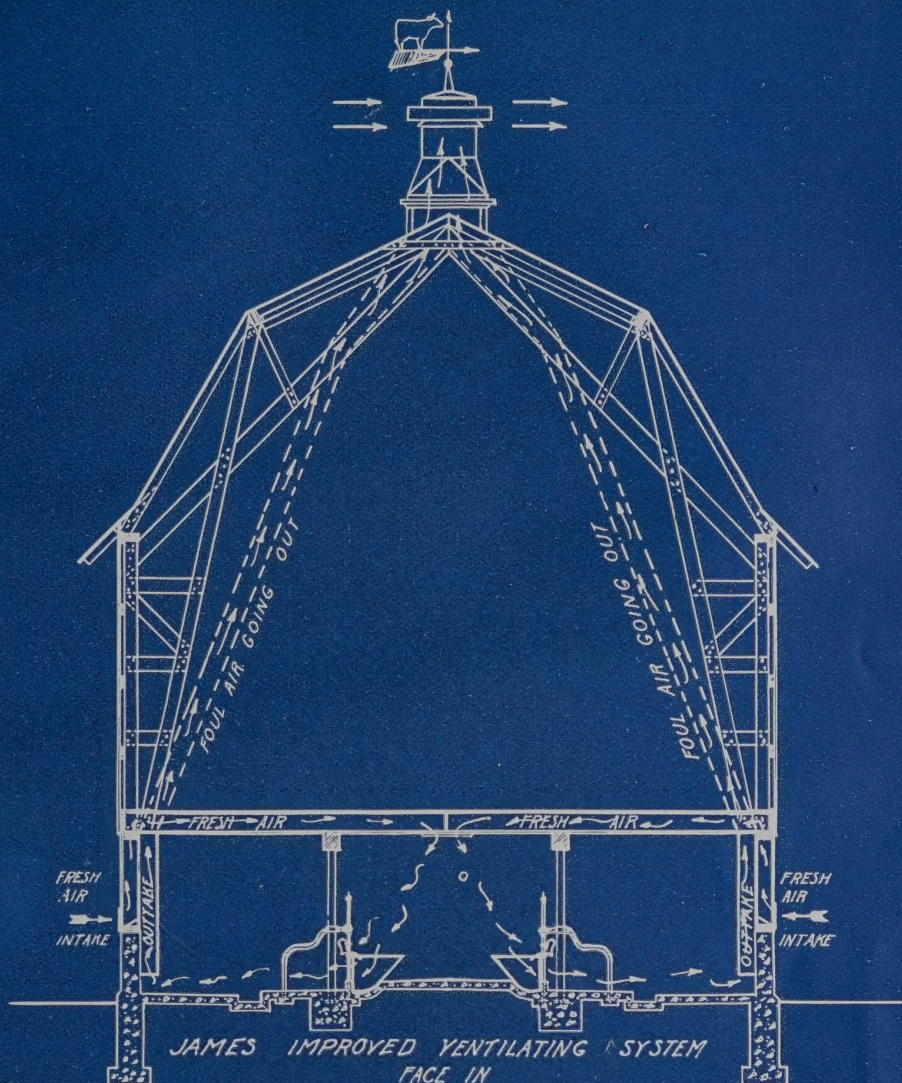
The air at the ceiling being warmest, the fresh air is gradually warmed as it descends.

Where the cows face out, air enters from the side wall near the ceiling; where the cows face in, the air is brought to the center of the barn and enters the stable through the ceiling.

Thus the fresh air always reaches the cows' noses before passing over the gutter, the intakes being so located that the foul air is drawn out from the rear of the cows.

This principle is a James idea.





By the proper spacing of the intakes and the correct location of the outtakes fresh air is so thoroughly diffused before reaching the cows that no harmful drafts are created, as often occurs when opened windows are used for ventilation.

There are many details, however, that must be observed in order that the system be fully efficient.

Essentials for the success of the system are covered in the following paragraphs:

1. The barn walls and ceiling should be as nearly air-tight as possible, consistent with economy; they should also be good nonconductors of heat.
2. The air should be made to enter and leave only through the flues designed and arranged for that purpose, in order that the heat lost may assist in ventilating the barn.
3. The flues through which the foul air is taken from the barn should be of a warm, air-tight construction, so protected as not to hinder the draft by allowing the outgoing air to cool too rapidly. The foul air flues should be at least twenty-five feet in height; the inlet into the flue being about one foot from the floor, in order that the coldest air may be removed. These outtake flues should be as straight as possible, with the proper capacity to insure a sufficiently rapid change of air.
4. The fresh air flues, to be most effective, should be air-tight, having their inlets outside of the barn, about midway between floor and ceiling and their openings into the stable within eight inches of the ceiling when the stalls face out. Fresh air intakes should be not more than twelve or fourteen feet apart, and should have a joint capacity exceeding that of the foul air outtakes.
5. If the cows face the center of the barn, the fresh air should enter the stable through the ceiling at the center through pairs of registers—one for each side of the barn—the registers in each pair being separated. If the cows face out, the fresh air should enter through the walls at the ceiling. This brings the fresh air to the cows' noses before it has any chance of being contaminated by passing over the gutters.
6. The foul air outtakes should be so located as to insure a thorough diffusion of the fresh air throughout the stable, leaving no "dead" spots of foul air at the ends, sides or center of the barn.
7. The outside opening of the outtake flue must be properly capped. We have for many years been engaged in the designing of dairy barns which have called for systems of ventilation; and during these years we have been called

on to examine hundreds of barns in which the ventilation was not working properly. Very frequently the trouble has been traced to an improperly constructed cupola.

The most frequent fault found is the tendency to make the cupola too small. If the cupola is too small, the system will not work satisfactorily, regardless of how carefully the balance of the system may be installed.

Another frequent difficulty is found in making the cap too low, smothering the draft.

And sometimes trouble is caused by going to the other extreme, making the cap too high, so that the wind blows down the outtake flues, forcing the air out through the intake flues.

One is apt not to understand just how large a ventilator should be unless the subject has been studied very carefully; and when a cupola is home-made, or purchased in a local shop, one is very apt to underestimate the size required.

8. Ventilators of correct construction should be used in connection with the system, to secure the added benefit of a forced draft or suction to pull foul air out of the barn.

9. When the barn does not contain the number of animals for which it is designed, the intakes may be partially closed, so as to restrict ventilation to an amount proportioned to the number of cattle in the barn. This is sometimes necessary in a partially filled barn, to keep it from getting too cold. There must, however, be enough cows in the stable to generate sufficient heat to maintain the difference in temperature between the stable and out-of-doors to secure the most efficient ventilation.

Degree of Ventilation Necessary

Authorities differ as to the amount of air to be provided in a stable, but at the present time they seem well united in considering that when it does not contain over $3\frac{1}{4}$ per cent of air once breathed, fairly good ventilation would be provided.

The need of a continuous and sufficient supply of fresh air cannot be overestimated. To secure good ventilation we have arbitrarily assumed the following:

1. That the flow of air in a square outtake flue will have at least an average velocity in the flue of 250 feet per minute, without mechanical forcing or the aid of heat other than that derived from the animals in the space to be ventilated.

2. That the standard of purity of fresh country air contains no more than four parts carbon dioxide in 10,000, and that the standard of purity which is to be preserved in the space to be ventilated be not over 17 parts of carbon dioxide in 10,000.

3. It is also assumed that the average relative humidity of fresh country air is 65 per cent or less.

To secure this air movement, the number of cubic feet of air required per head per hour would be as follows:

TABLE 1.

	Cu. Ft. Per Hour Per Head	Assumed Weights Per Head
For Horses.....	4,924	1,200 pounds
For Cows.....	3,953	1,100 pounds
For Swine.....	1,510	160 pounds
For Sheep.....	929	100 pounds
For Hens.....	37	3 pounds

With different weights per head, the amounts of air would change in proportion.

How to Figure Sizes of Flues

For example, an outtake ventilating flue for thirty cows would require $30 \times 3953 = 118590$ cu. ft. of air per hour.

We will assume an air movement of 250 feet per minute, which equals 15,000 feet per hour.

To ascertain the cross section area of the outtake flue required for the cows, it is only necessary to divide the number of cubic feet of air required for 30 cows, by 15,000, thus:

$$118,590 \text{ cu. ft.} \div 15,000 \text{ equals } 7.906 \text{ sq. ft.,}$$

requiring a flue 34 inches by 34 inches, or two flues 24 inches by 24 inches each.

For every outtake flue there should be a number of intake flues whose combined area exceeds that of the outtake flue by 10 per cent, even in view of the unavoidable leakage of air through the walls and around the windows and doors.

30 cows require an outtake flue of 1138.5 sq. in. area; then these cows should have an intake of 1138.5 sq. in. plus 10 per cent, which would be 1252.4 sq. in. Assuming 20 intakes, each would have to be 1252.4 divided by 20 equals 62.7 sq. in. area or about 8 in. x 8 in. square.

The nominal area of a register or register face should be about 50 per cent greater than given by this computation; actual areas of commercial registers are given in Table 2.

TABLE 2.

Size of Register Face Inches	Effective Area Square Inches	Size of Register Face Inches	Effective Area Square Inches
6 x 8.....	32	12 x 12.....	96
6 x 10.....	40	12 x 14.....	112
6 x 12.....	48	14 x 14.....	130
6 x 14.....	56	6 round.....	19
8 x 8.....	42	7 round.....	25
8 x 10.....	53	8 round.....	33
8 x 12.....	64	9 round.....	41
8 x 14.....	75	10 round.....	51
10 x 10.....	66	11 round.....	62
10 x 12.....	80	12 round.....	74
10 x 14.....	93	14 round.....	100

Cubic Feet of Space per Animal

It should be distinctly stated that in matters of ventilation it is cubic feet of air rather than cubic feet of space which should be provided, and in the construction of stables, the amount of space need only be so much as is required to permit ample room and freedom for the animals.

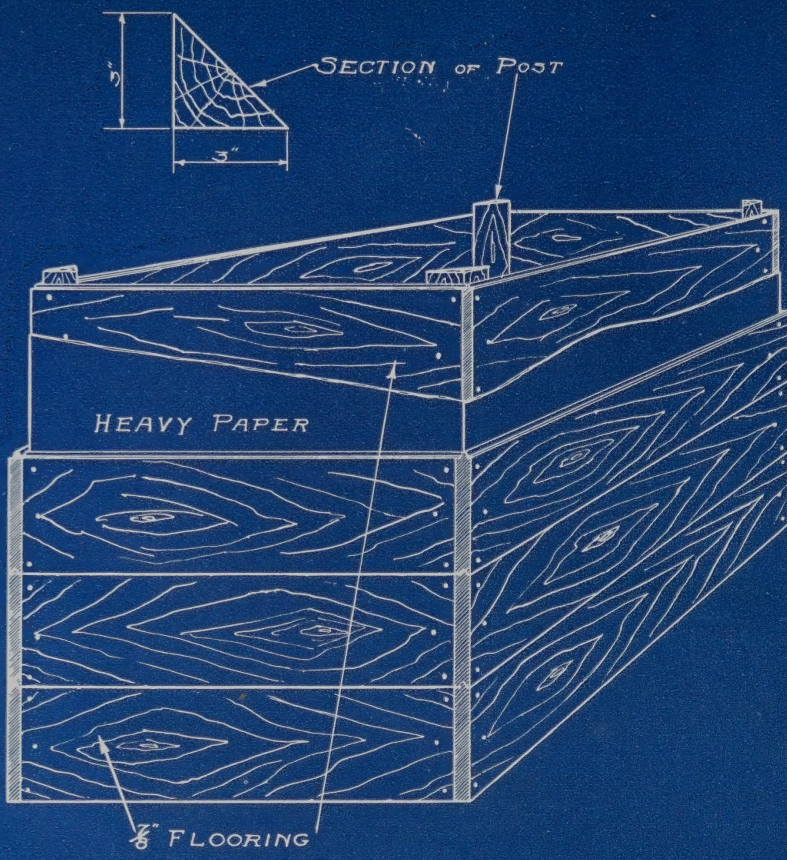
Thirty cows should not be housed in a space much less than 42 x 33 feet, with ceiling 8 feet in the clear. In warm climates there is no objection, except the matter of cost, to high stables, but when it is cold, high ceilings permit warm air to rise so far above the animals as to leave the stable cold at the floor.

Essentials of a Ventilating Flue

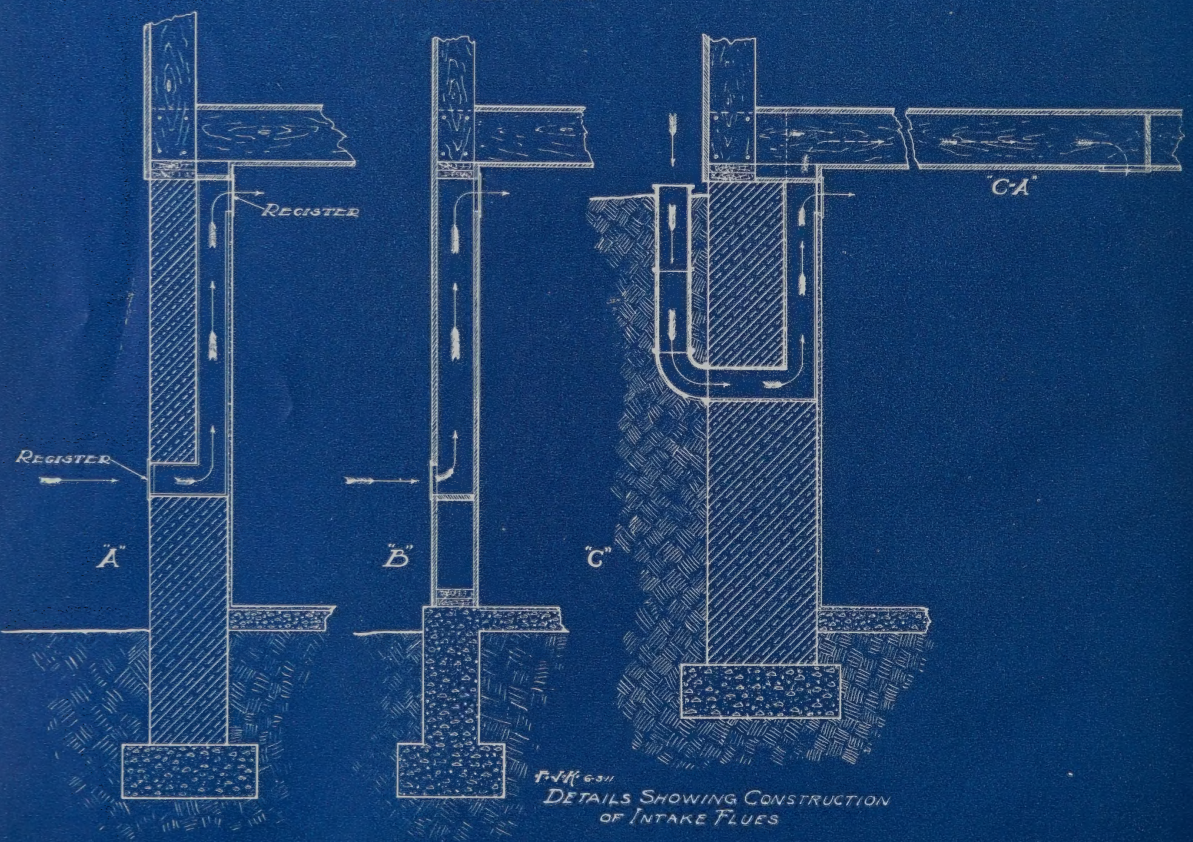
A good ventilating flue should have all the characteristics of a good chimney. It should be constructed with air-tight walls, so that no air can enter except from the stable. Its interior surfaces must be smooth, and it should rise above the highest portions of the roof, so as to get the full force of the wind. It is better to have it nearly straight, when possible, and it should have an ample cross section area. In case of a slight angle in the flue, the cross section area should be increased, to offset the friction loss. Stronger currents through the ventilators will be secured by making one or more larger ones than where many small ones are provided, and it is usually best to have as few as possible, *yet not leave the impure air in distant parts of the stable.*

Openings to the Ventilator

The outtake flue should reach within one foot of the stable floor, so that air may come up the shaft from that level. This is very important, in order that the coldest air at the floor be removed during the winter, rather than the warm air at the ceiling. The bottom opening should be made as large as the least cross section of the outtake flue.



DETAIL SHOWING CONSTRUCTION OF
OUTTAKE FLUE



There should be an opening provided at the ceiling for warm air to escape when the stable is too warm, and when it is desired to force the ventilation at the expense of the heat developed by the animals. Both these openings should be provided with regulating valves, so that either or both may be partly or completely closed.

Entrance for Fresh Air

It will be noted from the different cuts shown, that in all cases the fresh air enters at the ceiling. This is for the purpose of mixing it with the warmest air of the stable, so as to raise its temperature before it falls to the floor. In this way the heat which is rising to and is resting under the ceiling is saved. The entering fresh air forces the foul air down and absorbs the excess moisture, whence it can be carried off by the outlet flue.

Provision is further made for the air to enter the intake outside midway between floor and ceiling, so as to prevent the warm air being drawn out at these places by suction, or to pass out directly as it would if they opened directly through the walls.

Construction of Flues

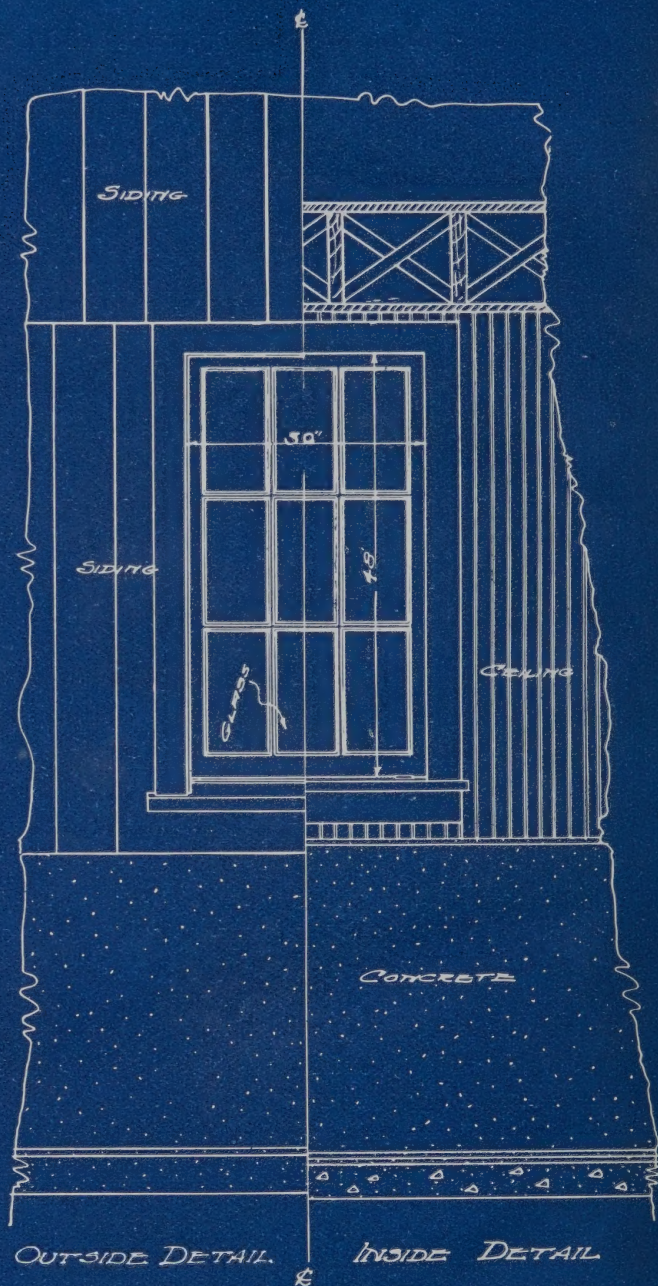
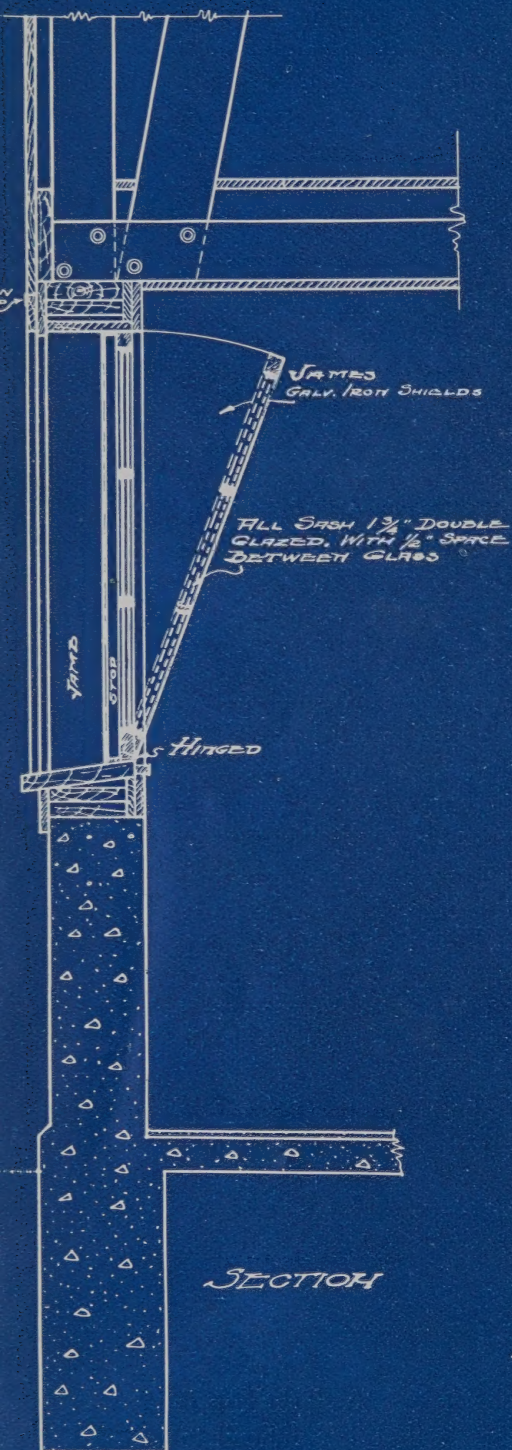
A good form of ventilating flue is made of two layers of number one matched stuff, $\frac{7}{8}$ -inch thick, with building paper or deadening felt between, to make it as nearly as possible a perfect nonconductor, thus preventing rapid cooling of the air in the flue. This form of construction also makes the flue air-tight, which is essential, for every hole and crack lessens the ventilating power.

If there is a bank on one side of the barn, Cut C shows how the fresh air is introduced. The air flue is made the same as on the other side of the barn, but on the outside has its end connected as represented on the right of the cut, with a length of 6- or 8-inch sewer pipe, with its top covered with a cap or coarse wire screen. Drain tile would not answer for the outside exposure at the surface of the ground, as frost would cause it to crumble. Wood could be used, and replaced after rotting had occurred.

These openings should be placed on both sides of the stable, if possible, in order to take advantage of the wind pressure that increases the draft. It is better to have many small openings than a few large ones, because the cold air is better distributed, lessening drafts. All intake flues should be equipped with registers, so the air is at all times in control of the party in charge. Intake flues may be made of galvanized sheets or wood.

Light

The manner in which a barn is lighted is of importance. A dark barn is bad in several ways. The most important objections are, that it is difficult to



DETAIL OF WINDOW FRAMES

keep clean, and is unhealthful. Make the barn sunny, for sunlight is Nature's greatest disinfectant, and of material assistance in keeping the cows healthy. There should be an abundance of windows.

As a rule, four square feet of glass should be provided for each animal in the barn. In cold climates, the windows should be a single sash of what is known as double-glazed windows. Do not run windows crosswise. The vertical window is far preferable.

With a rectangular barn, it is well to have the long way north and south. This will admit more direct sunlight to the stalls for the greater part of the day. Windows placed in the north side of a barn are of little service, for they admit no direct sunlight, which is necessary to destroy bacteria. South windows are always excellent, but, unless numerous, do not admit so much light to all parts of the barn as when placed on both east and west sides.

The position of windows is a matter of importance. Buildings with thick walls require larger windows to admit the same amount of light. It is best to place windows the long way up and down, for they will admit more light than when placed horizontally. They should be flush on the inside, to prevent accumulation of dust.

A single-sash window hung at the bottom is more practical than the double-sash, as the single-sash window can be dropped at the top, and the air as it enters is forced to the ceiling, thereby preventing a draft coming in direct contact with the cows.

Silos and Silage

Sizes.—As a matter of convenience in helping select the size of silo required, we give below, list of regular sizes, the capacities, and number of stock that can be fed.

Dimensions	Tons Capacity	No. of Cows it will keep for 6 mos. 40 lbs. per day	Dimensions	Tons Capacity	No. of Cows it will keep for 6 mos. 40 lbs. per day
8 x 20.....	19	4	14 x 22.....	62	17
8 x 24.....	22	6	14 x 24.....	67	19
10 x 20.....	28	7	14 x 26.....	72	21
10 x 22.....	31	8	14 x 28.....	78	22
10 x 24.....	34	9	14 x 30.....	83	23
10 x 26.....	37	10	14 x 34.....	93	26
10 x 30.....	43	12	16 x 22.....	81	23
12 x 20.....	40	11	16 x 24.....	86	25
12 x 22.....	45	12	16 x 26.....	95	26
12 x 24.....	50	13	16 x 28.....	102	29
12 x 26.....	54	14	16 x 30.....	108	31
12 x 28.....	57	15	16 x 34.....	110	31
12 x 30.....	60	16	16 x 38.....	122	33
12 x 34.....	68	19			

Free Barn Plan Service

THE James Architectural Department is maintained for the benefit of our customers and others interested in the building of good barns.

Whether you intend to build, remodel, or just make alterations or additions—either now or later on—the experience, special knowledge, advice and counsel of this Department is at your service.

The James barn planning service has saved hundreds of dollars each for other dairymen; and if you will take advantage of the benefits which it offers you free, you also will save money in the building of your barn.

This department is under the supervision of Mr. W. D. James, now known as the leading authority in the United States on the designing of dairy barns. Mr. James was born and raised on a dairy farm. A lifetime's practical experience has made him thoroughly familiar with every phase of the dairy business, from the cleaning of the barn to the handling of the profits. This, with his experience as a dairy barn designer, and as an inventor and manufacturer of dairy barn equipment, makes his advice of the greatest practical value.

Associated with him in work for our customers is a competent architect and engineer who has had unusual experience as consulting engineer in architectural work, giving special attention to reinforced concrete work of both beam and flat slab construction.

Another architect with several years experience in the planning of dairy barns, and a number of competent draftsmen complete the staff of the Barn Plan Service Department.

For years, Mr. James and his assistants have made a careful study of dairy barns—not only how they should be equipped—but how they should be constructed, lighted, ventilated, drained—how they should be designed and arranged to be most profitable to the owner.

They have personally visited thousands of dairymen, have inspected their barns, and consulted with them regarding the features most essential to a practical dairy barn.

They have talked with thousands of other practical dairymen on the same subject at dairy shows and fairs. Every year they furnish plans from which are built hundreds of splendid dairy barns and are called upon to solve the barn problems of other thousands of farmers through correspondence and personal consultation in our office.

JAMES barn plans represent all the biggest and best ideas in all the best barns built in every section of the country.

We incorporate in the barns we design the most valuable suggestions obtained from the thousands of plans which come before us yearly for our inspection and criticism; so that JAMES service represents not only the

original work of James experts, but the results of our contact with barn conditions everywhere.

The barns we recommend are plain, practical barns, believing the money is better spent to secure greater space, and better arrangement and convenience inside, rather than on a showy exterior. At the same time, the barns designed by us are well proportioned and pleasing in appearance, as may be seen from the photographs in this book.

You are offered the benefit of this special knowledge and long experience free of cost and without obligation on your part, excepting that we make a nominal charge to cover cost when blue prints and specifications are ordered.

We invite you to write us, submitting your ideas or telling us your problems; we may be able to make suggestions that will save you money, just as we have saved money for thousands of your brother dairymen.



GEORGE W. BROWNE
AUTOMOBILES

458 - 460 MILWAUKEE STREET
MILWAUKEE, WIS.



November
Twenty-second
1913.

James Manufacturing Co.,
Fort Atkinson, Wis.

Gentlemen:—It will no doubt interest you to know that we have completed and are now occupying the new Cow Stable built as per your plans and specifications and we are putting it very mildly when we state that this barn comes up to our expectation in every respect. We feel that with the advance ideas which have been incorporated into it through the excellent service rendered by you, we have a stable that will be modern for many years to come, as we are satisfied the best of foresight and judgment has been extended in the planning.

In conclusion, we wish to express our appreciation of the able and courteous manner we have been handled by your various department heads, which our dealings have brought us in contact with, and assure you that we are advocates of the James way of doing things.

Yours very truly,

BROWNE & McMILLAN,

By *T. O. McMillan*



SOME OF OUR RIGTJE'S
 RIGTJE PEBBE DE KOL No. 72846
 —23,470.2 lbs. Milk, 918.76 lbs. Butter,
 1 year, Semi-Official. 21 lbs. Butter, 7
 days, A. R. O.
 AND THREE DAUGHTERS:
 JOSEPHINE PEBBE No. 90158—
 16,996.4 lbs. Milk, 691.53 lbs. Butter, 1
 year, Semi-Official at 4 years. 25 lbs.
 Butter, 7 days, A. R. O.
 PINEHURST RIGTJE No. 101052—
 14,083 lbs. Milk, 550.09 lbs. Butter, 1
 year, Semi-Official. 17.25 lbs. Butter,
 7 days, A. R. O., at 3 years.
 PINEHURST PEBBE RIGTJE No.
 112761—11,103.3 lbs. Milk, 446.13 lbs.
 Butter, 1 year, Semi-Official at 2
 years. 21.62 lbs. Butter, 7 days, A. R.
 O., at 3 years.

PINEHURST FARM

PETER REISS, PROPRIETOR

HOLSTEIN-FRIESIAN CATTLE

SHEBOYGAN FALLS, WIS., Dec. 3, 1913.

James Manufacturing Company,
 Fort Atkinson, Wis.

Gentlemen:—The new dairy barn, built under plans and specifications you furnished and which we equipped throughout with the James fixtures, we have now occupied for a month, and we are very much pleased with it.

The equipment is working out very satisfactorily and the barn as designed is fully up to our expectations.

We have had very many visitors and are receiving a good many favorable comments on the completeness of the entire layout as designed by you. We have the best of ventilation, drainage, light, etc., and the arrangement is very complete, saving a great deal of time and labor in carrying out the daily work of an up-to-date dairy barn.

We can cheerfully recommend your equipment and service to anyone seeking advice and help in modern building.

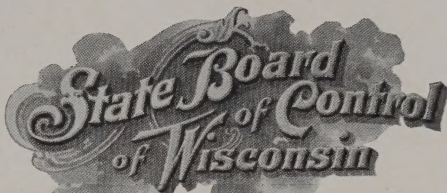
Yours very truly,

PINEHURST FARM,

Owner.

AMK

STATE HOSPITAL FOR THE INSANE,
MENDOTA,
NORTHERN HOSPITAL FOR THE INSANE
WINNEBAGO
WISCONSIN STATE PRISON,
WAUPUN
HOME FOR THE FEEBLE MINDED,
CHIPPEWA FALLS
WISCONSIN STATE REFORMATORY,
GREEN BAY
WISCONSIN STATE TUBERCULOSIS SANATORIUM,
WALES
WISCONSIN WORKSHOP FOR THE BLIND,
MILWAUKEE
INDUSTRIAL SCHOOL FOR BOYS,
WAUKESHA
STATE PUBLIC SCHOOL,
SPARTA
SCHOOL FOR THE DEAF,
DELAWARE
SCHOOL FOR THE BLIND,
JANESVILLE



RALPH E. SMITH, PRESIDENT,
MERRILL
DR. P. H. LINDLEY, VICE PRES.,
CHIPPEWA FALLS
W. H. GRAEBNER,
MILWAUKEE
JOHN P. LEWIS,
FRIENDSHIP
KATHERINE R. WILLIAMS,
MILWAUKEE

M. J. TAPPINS, SECRETARY,
MADISON

ADDRESS ALL COMMUNICATIONS TO STATE BOARD OF CONTROL

Madison, December 10, 1913.

James Manufacturing Company,
Fort Atkinson, Wis.

Gentlemen:—Referring to the
barn which you planned for the state at
the Wisconsin State Prison and the equip-
ment for the barn.

The barn is very satisfactorily
arranged and the plan of the barn is one
of the best that we have ever seen. It
is satisfactory to the Board in every
way. The equipment which you furnish is
also very satisfactory and the plan of
the barn and the equipment is all that
could be desired.

We have no hesitancy in recom-
mending your barn plans and barn equip-
ment to any person who is contemplating
the construction of a barn.

Very respectfully,

STATE BOARD OF CONTROL OF WISCONSIN,

By

Secretary.

MJT-MH.





JAMES